New Federal Actions Affecting Cities

By LIEUT. COL. PAUL V. BETTERS
Executive Director, The United States Conference of Mayors

JUST prior to the present Congressional recess, certain legislation vitally affecting the cities of the country was enacted and, for the first time since the War started, Congress considered bills having to do with post-war problems and programs. This article briefly describes some of the more important recent developments of nation-wide significance.

Federal Aid for Public Works Planning

On September 20, Congress passed the so-called George Bill (The War Mobilization and Reconversion Act of 1944). Title V of the measure authorized the Federal Works Agency to advance funds to cities and other public agencies for the preparation of detailed public works plans and specifications. This Title reads:

Sec. 501 (a) In order to encourage States and other non-Federal public agencies to make advance provision for the construction of public works (not including housing), the Federal Works Administrator is hereby authorized to make, from funds appropriated for that purpose, loans or advances to the States and their agencies and political subdivisions (hereinafter referred to as "public agencies") to aid in financing the cost of architectural, engineering, and economic investigations and studies, surveys, designs, plans, working drawings, specifications, procedures, and other action preliminary to the construction of such public works: PROVIDED, That the making of loans or advances hereunder shall not in any way commit the Congress to appropriate funds to undertake any projects so planned.

(b) Funds appropriated for the making of loans or advances hereunder shall be allotted by the Federal Works Administrator among the several States in the following proportion: 90 per centum in the proportion which the population of each State bears to the total population of all the States, as shown by the latest available Federal census, and 10 per centum according to his discretion: PROVIDED, That the allotments to any State shall aggregate not less than one-half of 1 per centum of the total funds available for allotment hereunder: PROVIDED FURTHER, That no loans or advances shall be made with respect to any individual project unless it conforms to an over-all State, local, or regional plan approved by competent, State, local, or regional authority.

(c) Advances under this section to any public agency shall be repaid by such agency if and when the construction of the public works so planned is undertaken. Any sums so repaid shall be covered into the Treasury as miscellaneous receipts.

(d) The Federal Works Administrator is authorized to prescribe rules and regulations to carry out the purposes of this section.

(e) As used in this section, the term "State" shall include the District of Columbia, Alaska, Hawaii, and Puerto Rico.

It is to be noted that the legislation authorizes *advances*. Since no funds were provided, it will be necessary for Congress, upon its reconvening after the November elections, to approve an Appropriation Bill, and thus enable the Federal Works Agency to carry out the purposes of Title V of this important statute.

Present and Post-War Federal Aid

These three pieces of legislation, two of which have become law and the third of which has passed the Senate, represent something definite upon which cities can develop local programs. In addition, it is clear that a Post-War Federal Airport Program will receive consideration at the next session of Congress. Pursuant to a House Resolution, the Civil Aeronautics Administration has conducted an exhaustive survey and is about ready to report the need for 3,050 new airports—as well as the necessity for improving a large number of existing landing areas.

Finally, a Subcommittee of the Special Senate Committee on Post-War Economic Policy and Planning, under the Chairmanship of Senator Taft of Ohio, is at work on the whole question of housing and urban redevelopment.

It is now generally agreed that if *non-federal* public works are to provide any *substantial number of jobs* in the post-war period, federal grants-in-aid are mandatory. Recently the House Economic Planning Committee (the formation of which was announced by Speaker Sam Rayburn at the last annual conference of The United States Conference of Mayors) pointed out that federal financial assistance should be invoked to support a large public works program if necessary to sustain the national "economy during the conversion and post-war period."

Cities contemplating the filing of applications for federal assistance for public works planning under the George Bill should bear in mind that such advances could be repaid or offset by future grants, if, as, and when authorized by the Congress.

Surplus War Property Legislation

On September 19, Congress completed action on Surplus War Property Legislation. Sections of this measure affecting the cities read as follows:

DISPOSAL TO LOCAL GOVERNMENTS AND NON-PROFIT INSTITUTIONS

Sec. 13 (a) The Board shall prescribe regulations for the disposition of surplus property to States and their political subdivisions and instrumentalities, and to tax-supported and non-profit institutions, and shall determine on the basis of need what transfers shall be made. In formulating such regulations the Board shall be guided by the objectives of this Act and shall give effect to the following policies to the extent feasible and in the public interest:

(1) (A) Surplus property that is appropriate for school, classroom or other educational use may be sold or leased to the States and their political subdivisions and instrumentalities, and tax-supported educational institutions, and to other non-profit educational institutions which have been held exempt from taxation under section 101 (6) of the Internal Revenue Code.

(B) Surplus medical supplies, equipment and property suitable for use in the protection of public health, including research, may be sold or leased to the States and their political subdivisions and instrumentalities, and to tax-supported medical institutions, and to hospitals or other similar institutions not operated for profit which have been held exempt from taxation under section 101 (6) of the Internal Revenue Code.

(C) In fixing the sale or lease value of property to be disposed of under subparagraph (A) and subparagraph (B) of this paragraph, the Board shall take into consideration any benefit which has accrued or may accrue to the United States from the use of such property by any such State, political subdivision, instrumentality, or institution.

(2) Surplus property shall be disposed of so as to afford public and governmental institutions, non-profit or tax-supported educational institutions, charitable and eleemosynary institutions, non-profit or tax-supported hospitals and similar institutions, States, their political subdivisions and instrumentalities, and volunteer fire companies, an opportunity to fulfill, in the public interest, their legitimate needs.

(b) Under regulations prescribed by the Board, whenever the Government agency authorized to dispose of any property finds that it has no commercial value or that the cost of its care and handling and disposition would exceed the estimated proceeds, the agency may donate such property to any agency or institution supported by the Federal Government or any State or local government, or to any non-profit educational or charitable organization, or, if that is not feasible, shall destroy or otherwise dispose of such property, but, except in the case of property the immediate destruction of which is necessary or desirable either because of the nature of the property or because of the expense or difficulty of its care and handling, no property shall be destroyed until thirty days after public notice of the proposed destruction thereof has been

(*Concluded on page 101*)

Camouflaged Communications Center of American Command Post during heavy fighti

Front Line Telephone Post

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Bell System manufacturing facilities have had to be devoted almost exclusively to keeping the armed forces supplied with communication and electronic equipment. As a result, we are short of tele phones, switchboards an other equipment needed t meet civilian requirements.

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Our Municipal Notebook

How About Your Airpark?

FOR 25 years THE AMERICAN CITY has presented the best in airport thinking, from "Cities Preparing for Future Air Traffic," in February 1920, to "Let's Lick the Air Traffic Problem Before It's Handed to Us," in this issue. Back in 1920, THE AMERICAN CITY believed "One has only to look at the towns in which no provisions were made for railroads to learn that the secret of the non-success of these municipalities was a lack of vision and a disregard of railroad needs." Today THE AMERICAN CITY says: "Those communities which do not provide convenient landing facilities for the personal flying of their citizens are likely to see progressive neighboring communities flourish at their expense."

Airports have long been a municipal problem—but never as now when, as Thomas E. Walsh, Chairman of the Michigan Board of Aeronautics says: "Municipal officials definitely are the key for the promotion of aviation and the development of facilities."

They are the key because the door is a universal system of airports, air harbors, airparks, flight stops, and air strips. Who else will provide them but the communities? "Landing facilities are a community problem," said Joseph T. Genting, Jr., Chairman of the Personal Aircraft Council, Aeronautical Chamber of Commerce of America, and Vice-President, General Aircraft Corp., Astoria, N. Y., in a press interview at the Waldorf-Astoria, N. Y., on September 25.

Before the war there were 25,000 private or personal airplanes; estimates vary from the conservative 500,000 to the possible 5,000,000 10 to 15 years after the war. This can only happen if (1) the personal aircraft are ready, and they are said to be, and (2) if city officials know about these light, safe, low-cost planes and rush the landing facilities for them. An airpark can be built for $25,000, less or more, with runways 2,000 x 300 feet. Air strips or flight strips of 1,800 x 360 feet are produced largely by labor and can cost very little.

Colonel Earle Johnson of the Civil Air Patrol, New York, has urged communities to remember their war dead with Memorial Parks. There is no better public investment than investment in the land of the community, and no more sacred investment or public-spirited project. The Memorial Park can be an airpark or a victory garden. As an airpark it will represent the new age for which our soldiers believe they are fighting and the new age is the air age.

Denver Acts to Eliminate Substandard Dwellings

Denver adopted a housing code last month adding that municipality to the small list of local governments with comprehensive ordinances regulating existing housing. The ordinance defines substandard dwelling units and empowers the building inspector to compel correction of substandard conditions, the National Association of Housing Officials reports.

The Business of Fire Insurance

THE fire insurance business has a certain fascination for those who pay substantial premiums year after year and hardly ever have fires, and also to those who are interested in what appears to be large and easily saved money. Hundreds of city officials have given consideration to this perennial expense which, like life insurance premiums, tends to become burdensome and even exasperating with the passage of years.

When the American Municipal Association in 1939 issued a report of premiums paid and fire losses in 474 cities in 9 states, there followed quite a controversy over rates for municipal properties, summed up briefly by Mayor John W. Fry of Edmonton, Alberta, in his article in the July 1944 issue of THE AMERICAN CITY. Mayor Fry's article also proposes that cities associate as a municipal mutual fire insurance organization. The fact that this proposal has already been termed socialistic is not a telling objection in these modern times. The added fact that it could be extended to apply to manufactured articles as well as to services and that, following this line, a city would find itself an industrialist rather than primarily a government, also is a little beside the important point. Cities have manufactured fire apparatus, aluminum sulphate, traffic signs, and thousands of them are in the public utility business. Nor is it important to examine the obvious obstacles in the way of establishing such a self-insurance association. If the proposal is sound, ways can be found to put it into effect.

It is one thing to establish a business, and another thing to keep it healthy year in and year out through the decades. The important point sometimes overlooked in studying the rates, premiums and net income of private insurance companies is that the insurance company is in business. True, it is in business to make money, as are all other companies and presumably city officials. But to make money, this year, next year and the year after, service must be rendered without fail. Money must be kept available to pay losses fully and promptly. However attractive the opportunity for investment and however drastic a depression, this ability to pay must be maintained by self-insuring cities—because the city's job is something entirely different from insurance.

One of the weaknesses of such a plan is that the man or men who devise it, with high public purpose, pass on, and the working of the plan becomes the heritage of other men who may have little interest in it and may even be antagonistic to it. They see hundreds of thousands of dollars lying idle awaiting an F Day that may never come. The temptation and seeming justification to dip into this fund and dip again and again, is severe. The private insurance company cannot thus dip, or it will certainly come to grief. Its rates will be higher than those of a federation of cities, but they are a charge for a service which will be found to be secure if and when F Day comes to the city.

$29 Per Year Net Per Parking Meter

SIX years ago White Plains bought 1,012 Mark-Time parking meters for $31,638 and has spent $4,892 in maintenance. Meanwhile gross receipts have amounted to $211,845, leaving a net of $175,295. On September 20, Traffic Engineer Richard W. Siver of the Department of Public Safety reported to the City Council that the meters have been so successful in regulating parking that residents would now balk as much at the removal of the meters as they did at their installation.

No wonder many post-war traffic plans are built on and around revenues of parking meters already operating or proposed.

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Water Works

Van Norman Resigns; Morris Succeeds Him

ON October 1, S. B. Morris, Dean of Stanford University's School of Engineering, took over his new duties as General Manager and Chief Engineer of the Los Angeles Department of Water and Power, replacing H. A. Van Norman, who has been a member of the department since 1907 and a pioneer in the development of the Los Angeles aqueduct system.

S. B. Morris

Mr. Van Norman, a national director for the American Water Works Association and a past president of the California Section, sought to retire a year ago when the water and power bureaus combined, but agreed to remain as chief of the new organization. He will continue to serve in an advisory capacity.

Dean Morris, a native of Los Angeles and a graduate of Stanford, has been a professor of the Civil Engineering Department since 1935 and Dean since 1936. Prior to his connection with the university he was General Manager of the Pasadena, Calif., Municipal Water Department.

New Development Program Formulated

THE Committee on Water and Sewage Works Development has recently completed plans for activities up to June, 194. They are: to continue to promote needed construction of water and sewage works for the post-war era through a central office; to distribute specific example-type literature and to cooperate with state sanitary engineers in working out this program.

The Committee objectives as drawn up by Dr. Abel Wolman and Harry Jordan are to promote a full realization of the necessity to blueprint now for post-war construction; to further a recognition of the value of federal loans to municipalities in promoting planning, but holding that federal grants-in-aid for public works construction at the state or local level are not needed at this time. The committee's function, Dr. Wolman and Mr. Jordan hold, is one of morale building, not of selling.

Clarksburg, W. Va., Officials Urge New Water Storage

IN an eloquent appeal through a recent brochure, Scotland G. Highland, Secretary and General Manager of the Clarksburg Water Board, sets forth the facts, as he sees them, that point to the necessity of a larger water storage reservoir on the West Forks River and the Elk Creek basins above Clarksburg.

Approximately 25 billion gallons are needed, he feels, in order to sustain the city during a repetition of prolonged droughts such as those experienced in 1930. In view of the greater demand at the present time, the city could not possible sustain itself if drought conditions recurred. Well supplies are not available to supplement any shortage because acid mine waters and brines from deeper dock strata are allowed in some places to contaminate the existing supplies.

On September 1, the Board of Directors of the Chamber of Commerce adopted a resolution favoring the construction of water storage facilities as recommended by Mr. Highland.

Water Quality in Distribution System

BECAUSE it is impossible to reach the water in a distribution system, it is important to maintain the purity of the water there, according to an article by Paul D. Haney, Chief Sanitary Engineer for Kansas in a recent issue of the Kansas Government Journal.

Turbidity and discoloration are often caused by iron and manganese. These are usually removed by a system of aeration, sedimentation and filtration.

Unpleasant appearance and taste is the result of the corrosion of pipe and occurs most often in the dead-ends of a distribution system. This problem may be eliminated by looping the line into the rest of the system to provide continuous circulation of the water. The use of chlorine is effective to prevent corrosive acting bacteria.

Water may remain clear and yet contain harmful bacteria. Cross- and back-flow connections or contamination from repair work are often the cause. Since, as Mr. Haney states, one of the worst epidemics of water-borne diseases ever to occur in Kansas was the result of a back-flow connection, water departments should make a real effort to eliminate these plumbing hazards.

All new pipe should be flushed and disinfected before being placed in service. If regular bacteriological tests are made of samples taken throughout the distribution system the presence of bacteria will be known and the cause can be found and eliminated.

Urges Water Works Men to Be Ready to Meet Demand for Water

TO prepare water works operators for the problems that will confront them soon, Arthur E. Gorman, Director, Water Division, Office of War Utilities, War Production Board, urged operators in a recent address presented at the New England Water Works Association's annual meeting to no longer delay work essential for adequate maintenance or construction to meet the water demands of 1945.

To facilitate this program the new U-1 order makes it no longer necessary to file WPB—2271 applications for minor plant extensions of $10,000 or less. In cases where clearances are necessary the Water Division is most anxious to assist operators.

Promptly after V Day when Germany surrenders, WPB will relax its controls over most materials to meet the needs of the civilian economy, and since orders in effect at that time are likely to have preference, those filed now will be in a better position to obtain needed materials. Most materials required for water works construction are available now although in many places manpower is still tight and wood scarce.

Operators are urged to place coal orders immediately, but should they have difficulty in obtaining adequate supplies, the Water Division should be notified and coal deliveries to meet the plant's requirements will be arranged for. Mr. Gorman likewise recommended that coal-burning equipment be reconditioned to help alleviate the coal shortage.

The problem of supplying water during the war has revealed weaknesses in many water systems and a policy to correct these deficiencies should be undertaken, according to Mr. Gorman.

In Paris

LAYNE WELLS AND PUMPS

...are still on the job

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Surviving the days of ruthless enemy occupation, Layne Wells and Pumps are still on the job! With the exception of some cases of sabotage or wilful enemy destruction, those Layne Wells and Pumps are still producing somewhere near 90,000,000 gallons of water daily.

The Paris wells are 3,000 feet deep, with their corrosive proof, Layne built shutter screens set in the famed green sands formation. They were installed in 1928-29 by Layne-France Company, one of Layne's many affiliated companies. The city officials of Paris, after thorough investigation, selected Layne Wells and Pumps from a field of the keenest world-wide competition. Their confidence in the equipment has been more than justified.

Today in liberated Paris, rebuilding is already under way, but little or no work will be required to keep Layne Wells and Pumps spinning merrily along and producing ample quantities of water.

Layne Well Water Systems have also made great records in other war zones; Dakar, Tunis, Casa Blanca and London. They have long lasting quality that more than amply fits them for any peace-time need.

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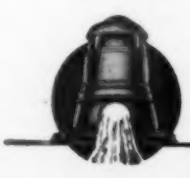

LAYNE

WELL WATER SYSTEMS

DEEP WELL PUMPS

Street Cleaning and Refuse Disposal

Tire Shortage Threatens New York's Sanitation Department

WILLIAM F. Carey, Commissioner of the Department of Sanitation for New York City, revealed that his department has been in urgent need of tires for street-cleaning and refuse-collection trucks since the spring of this year. At the present time there are 150 trucks out of use because of lack of tires. He declared that as winter approaches it will be imperative to have more tires in order to keep snow off the streets and to continue to fulfill the city's vital job of war transportation.

Mr. Carey said that his department was now only able to do a fairly adequate job of refuse collection and street cleaning and that together with the ever increasingly vital need for keeping the city streets open to essential war transportation he "hopes that WPB will soon realize the seriousness of the situation and grant the priorities needed to solve the situation."

Jacksonville, Fla., Reduces Garbage 17.7 Percent

ACCORDING to a report recently made by Health Commissioner P. M. Ulsch, Jacksonville's average family threw away considerably less garbage in 1943 than in 1942.

In 1942 the report showed that each Jacksonville family disposed of 6,093 pounds of garbage and in 1943 disposed of only 5,014 pounds, a decrease of 1,079 pounds. The Commissioner attributes the decrease to the cooperation of Jacksonville housewives in the food conservation program.

Jacksonville's garbage department collected 335,093,810 pounds of garbage in 1942 and 313,185,740 pounds in 1943. The difference of 21,908,070 pounds was a decrease of 17.7 percent.

Garbage Collection in Oak Park, Ill.

ACCORDING to the Oak Park, Ill., yearly report, garbage collection and disposal is handled in the following manner:

All combustible waste materials are disposed of in a garbage incinerator without smoke, odor, or nuisance of any kind. All small dead animals, such as cats and dogs, are disposed of in this plant. The plant has a rated capacity of ten tons per hour.

The garbage collection equipment and force has been maintained at eighteen men, three 1½-ton International trucks equipped with 5-yard bodies, and three 1½-ton Chevrolet trucks. Collections of garbage have been made twice a week excepting when prevented by bad weather.

The incinerator is operated nine hours per day excepting on Sundays and holidays and, is open one-half day on Saturdays for receiving commercial garbage. It is operated by four men: one on the charging floor, one in the furnace room during the collection period, and two working at night finishing the burning of the garbage and cleaning the furnaces, building, etc. Men working on the collection and disposal of garbage are on a five-day schedule.

In addition to the garbage and combustible waste collection by the Street Department, there is brought to the incinerator a considerable amount of combustible rubbish and waste materials from markets, fruit stores, and other commercial houses. This is hauled to the plant by these concerns.

Burlington, Vermont, Salt Spreader

THE Street Department mechanics of Burlington, Vt., have constructed a rock salt spreader from a section of 2½-inch pipe welded to the bottom of a homemade sheet metal hopper. To allow for adjustability of height, a chain and hook are attached to a section of 3-inch pipe which telescopes over the smaller pipe. By raising or lowering the chain the discharge end of the pipe may be set as desired.

This device allows the salt shoveled into the hopper to drop to the street in front of the rear lefthand tire.

The street Department reports that salt used in this way at the beginning of a storm prevents snow from packing and freezing to the pavement in case of heavy snow fall, or for removing smaller amounts of snow.

This is Main Street in Burlington, Vt., showing the effect of rock salt applied to the street the night before.

This Dodge truck has a funnel attachment at the left of the truck which spreads salt over the city streets.

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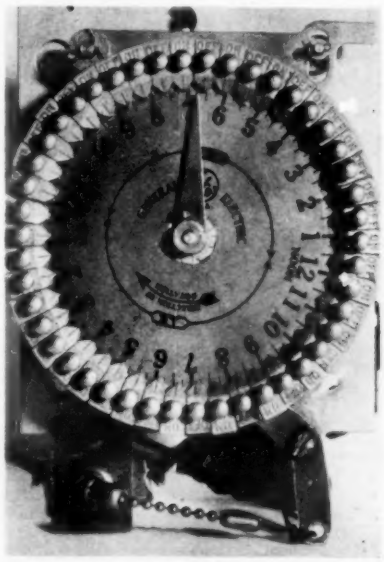
Sewerage and Sewage Treatment

Automatic Control of Field Floodlights

WHEN the Office of Civilian Defense suggested that public and private utilities keep their yards and vital outdoor equipment illuminated during hours of darkness to protect against potential sabotage, it was often very inconvenient to turn these lights on and off because the time for such chores came when no workers were normally on duty. After studying the situation Otto C. Rimmele, Chief Operator of the Janesville, Wis., sewage-treatment plant, found a unique solution to the problem. He decided to tie up the field lighting circuit with an automatic switch used for other purposes—a procedure which is presented here in detail.

The automatic switch selected was one that controls the screen elevator motor. It is a General Electric automatic time switch, Type T-13, single pole, single throw, 30 amps., 230 volts, and 60 cycles. Its clock-like dial has 48 throw levers mounted at intervals about the entire circumference. The throw levers are simply small wedge-shaped projections that tip a mercury switch on and off, the mercury switch controlling the motor. The throw levers are interchangeable so that an "on" or "off" lever can be inserted anywhere about the 24-hour dial within a minimum of half-hour intervals.

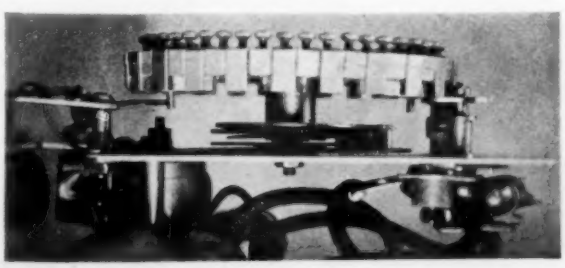


ABOVE: *The automatic control for the Janesville, Wis., sewage treatment plant's floodlights. The pull chain at the lower left corner is operated by the dog at the lower right*

Investigation revealed that this device is readily adaptable to other uses without interfering with its primary purpose. With this in mind, Mr. Rimmele connected the field flood-lighting circuit to a 30-amp., 3-pole magnetic switch. Then from the magnetic coil of this switch a line was run to an ordinary pull-chain switch which had been installed on the automatic time-clock. On each of two of the clock's throw lever wedges an additional pin was inserted in a manner that it would not interfere with normal operation. One of these pins was inserted into an "on" lever, the other, into an "off lever.

The purpose of these special pins is obvious. As the clock dial rotates, the first pin eventually gets around to trip a little dog which in turn tugs on the pull-chain switch. This pull-chain switch throws on the magnetic switch which turns on the floodlights. At the proper time the second pin gets around to trip the dog and the lights are turned off. Because the throw levers are interchangeable, the time for turning the lights on or off can be set for any prearranged hour or half-hour.

By HERBERT P. KAKUSKE,
Superintendent
Sewage Treatment Plant



LEFT: *This shows the two special pins which were inserted to trip the dog. The lower pin is in contact with the dog ready to trip it and turn on the lights*

FIFTH ANNUAL MEETING
Federation of Sewage Works Associations
October 12-14, 1944
William Penn Hotel, Pittsburgh

A program has been formulated to give the most recent findings in methods of treating sewage. Particular emphasis will be given to the handling of industrial sewage waste which, because of swollen wartime manufacture, has become an outstanding problem throughout the nation.

Don't fail to attend this meeting and hear about the latest developments in sewage treatment from experts in the field.

Irrigation with Sludge Here to Stay?

WITH rather embarrassing regularity we come across examples of capable and practical sewage plant operators who have firmly abandoned the use of carefully designed sludge dewatering and disposal devices and have substituted instead the simple expedient of running the liquid sludge onto the adjoining farmland and using it directly as a soil conditioner in an area that can be supervised closely. Anderson, Ind., is an excellent example (see page 69).

Obviously there is a good deal of merit in the method. It requires no expensive, hard-to-operate equipment. It utilizes the sludge to profitable advantage instead of merely destroying it. And it insures that the sludge will be used on crops where there is no possibility of a public health hazard such as might be the case when the sludge is used directly on victory gardens.

However, the method requires a lot of space. The Anderson plant uses a 64-acre farm which for a sewage plant site is a lot of land.

The fact that the method seems to be fairly well established makes it a bit difficult for sanitary engineers who are studying a proposed sewage treatment plant. Even though very few of them have any farm background, they, nevertheless, will find that they must evaluate this agricultural practice with the more common sludge disposal practices with which they are familiar. They will have to match the purchase price of the additional land against the earning power of the land as a farm, and then take the net difference and compare it with, let us say, vacuum filtration and sludge incineration.

All of which, we cannot help but feel, is going to make the post-war sewage treatment picture increasingly interesting.

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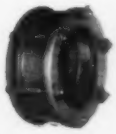
FLEXIBILITY • TIGHTNESS

Every Dresser pipe joint and repair device is fast, simple, flexible. Each makes a permanently tight connection or a permanent repair on any size pipe—steel or cast iron. Some of the more popular style numbers are:



Style 38 Dresser Couplings—the quickest, fastest way of connecting pipe. You have only to bolt the few accurate parts together over plain-end pipe. No pipe-end preparation—no exact pipe-fitting needed.

Style 85 Bellmaster Joints—the greatest development in cast iron pipe joining in over 100 years. Completely self-contained. Joints are installed in less than five minutes.

Style 90 SUPER SERVICE Fittings—without a second in quality and efficiency for all types of service work. You do not have to take these factory-assembled fittings apart to install.

Style 60 Bell-Joint Clamps—the universally accepted standard in repair clamps for bell-and spigot joints. Highly adjustable Uniformly tight.

These are only four of the Dresser handy, ready made products for pipe-line construction and maintenance. Investigate the complete Dresser line.

Airports and Aviation

Financing Airports

IN AN article published in a recent issue of the Iowa Engineering Society's *Proceedings*, Roy M. Young, Airport Paving Engineer, Region V, C.A.A., states:

"An airport manager should be appointed whose duties would include the efficient operation of all functions of the airport and the control of any and all income producing operations. A list of possible sources of income would include:

"Rental of office space (exclusive of federal services).
"Rental of hangar space.
"Landing fees for airline aircraft.
"Ramp services.
"Charter and sight-seeing privileges.
"Airplane sales and service activities.
"Flying school operations.
"Facilities for storage and servicing of privately owned aircraft.
"Repair and general aircraft overhaul operations.
"'Fly-it-yourself' plane rental services.
"Gasoline and oil services.
"Meals aloft catering service.
"Pilots' supplies.
"Airplane and personnel insurance.
"Photographic service.
"Observation deck fees.

"All maintenance expenditures and operating income should be handled by the airport manager subject to direction by a commission of the elected city officials.

"In conclusion, it should be stressed that most communities should expect to develop their own airport facilities. Some few Iowa towns have received help in the construction of runway pavements when they are so situated as to be on the strategic network of the armed forces. The majority of towns, however, should proceed with their own plans after obtaining approval by the Iowa Aeronautical Commission and the C.A.A. as to aeronautical features. The problem is so large that any reasonable amount which Congress might set up could do no more than provide a start towards the financing of individual airports. It appears now that any city which is without an airport is going to be in the situation of our inland towns with respect to the railroads. The decade after the war is likely to show a remarkable growth of air commerce of all kinds and while no city should overbuild its airport facilities, it also follows that no city should overlook the possibilities of this latest means of transportation."

Development of Post-War Airports

ACCORDING to B. E. Gray, General Manager and Chief Engineer of The Asphalt Institute, airports today are in a stage of development similar to that of roads 20 years ago. A small percentage of airports will have a growth comparable to that of our national arterial highways. These will be the airports strategically located throughtout the country and will handle the bulk of the heavy air traffic, that is, freight and the majority of the passenger traffic. These ports will necessarily be large and their design will be intricate, offering the last word in equipment and facilities.

The number of airports that will serve the "flivver" traffic may be compared to feeder roads—they will be vastly greater in number and will undergo a similar "stage" development.

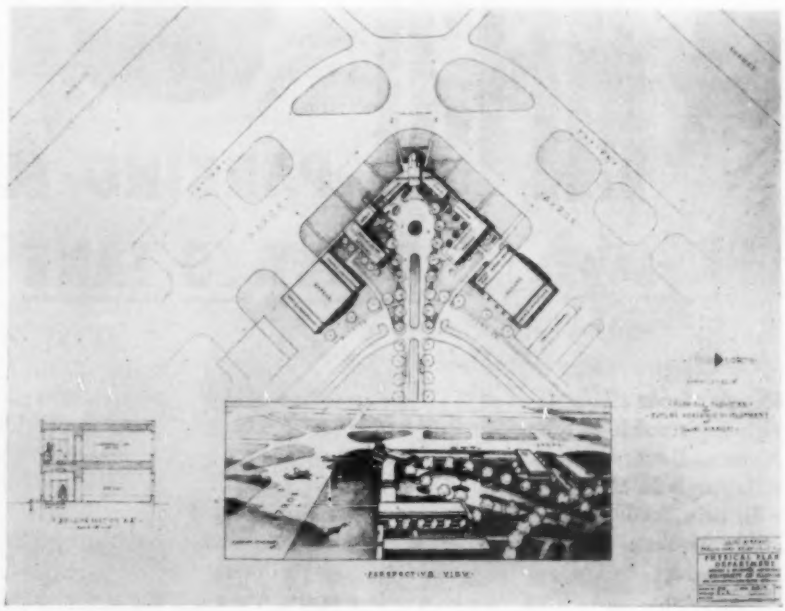
In the great majority of communities it will be necessary to construct an airport that will be low in cost and is easily and inexpensively maintained. This port at first may have grass runways which will serve adequately until the abrasive effect of an increased traffic wears away the sod. As proof that grass can be a satisfactory surface, Mr. Gray cited the instance of the Rancho Boyeros airport at Havana, Cuba, which handles a limited amount of traffic of all kinds, including heavy transport planes.

However, when the sod becomes worn it will be necessary to furnish a more adequate wearing surface. This may be accomplished in a number of ways, such as placement of gravel, stone, or stabilized earth, made waterproof and dustless by appropriate bituminous treatments. As traffic further increases, these surfaces in turn can be strengthened by placing a plant mix wearing course without losing any of the original investment. Thus an airport will develop through various stages until its runways are constructed of one of the various types of durable pavement.

In this way it will be possible for any community which feels the need of an airport to have one, and its evolution may parallel the requirements of the community in a logical and practical way, according to Mr. Gray.

U. of Ill. Envisions Future of Aviation In Its Airport

ACCORDING to J. J. Doland, Supervising Engineer for the University of Illinois airport, an Airport may fulfill one or more of the following functions: national security, commerce, civilian business or pleasure, education, and research. The University airport at Urbana, Ill., has as its goal the fulfilling of all five functions with particular emphasis on education and research.



The first educational institution to sponsor a class IV airport, the University of Illinois, plans laboratories and class rooms where the various colleges will integrate a thorough-going program of research and education in the various aspects of aviation including engineering, airport operation, management, food transport, aviation medicine, psychology and other subjects.

ALTERNATE FREEZING and THAWING
RAIN HAIL and SLEET STORMS
SEE REGULATIONS ON OTHER SIDE
INSERT ONE COIN AT A TIME
TURN HANDLE TO STOP AFTER EACH COIN
MI-CO METER
CINCINNATI OHIO
PATENTS OTHERS PEND
EXCESSIVE HEAT or COLD

MI·CO PARKING METERS ARE BUILT TO TAKE IT!

Reports from all sections of the country tell us of the virtually trouble-free performance of MI-CO Parking Meters. Records show that these meters function unfailingly in alternate freezing and thawing weather —in rain, hail or sleet storms—in excessive heat or cold. And the reasons for such performance are: (1) Correct design and engineering; (2) Unusually rugged construction; (3) Fewer moving parts. Wherever installed, MI-CO Meters are giving dependable service as well as relieving traffic congestion in shopping areas. They have the unqualified endorsement of city officials, merchants and motorists alike. Investigate the practicability of MI-CO Parking Meters for your community. ¶ Because of manufacturing restrictions, these meters are not now available. But to help you plan for the future, we suggest you send for fully illustrated folder which gives complete specifications and details of constructional features.

MI-CO METER CORPORATION, 231 Court St., COVINGTON, KY.

Manufactured under the patents of F. L. Michaels by The Michaels Art Bronze Co., Inc.

The Kent County System of Rural Fire Control

By RICHARD MACHIELE
Assistant County Agricultural Agent
Kent County, Grand Rapids, Michigan

KENT COUNTY, MICH., whose seat is Grand Rapids, has used high pressure fire-fighting equipment on rural fires for the last two years. In 1941 the Michigan legislature passed an emergency act enabling counties or townships to organize fire protection units to protect areas having inadequate protection. The County Board of Supervisors appointed a county fire committee which requested K. K. Vining, County Farm Agent, to make a survey of the existing fire-fighting apparatus in the county. It was found that 15 townships lacked facilities, and fire districts were set up. The County Road Commission agreed to house and service the new fire equipment at county garages, the township paying half the cost of equipment and operation.

Five high pressure fire-fighting units were purchased from the John Bean Co., Lansing, Mich. There is a driver at each of the trucks 24 hours a day. It is his duty to drive the truck to the fire at call and to keep the truck and fire equipment in operation. The fire fighting is done by a group of volunteer fire fighters.

There is a township fire chief. Each township is divided into fire districts each with a fire chief. The farms in each district have been individually analyzed as to needs in case of fire.

After the trucks arrived, an equipment demonstration was held in each township. At some of the demonstrations a company representative discussed the equipment and demonstrated its use. In the next 19 months there were 210 runs, 78 dwelling fires, 58 grass, 38 farm buildings, 15 other buildings, 12 autos and trucks, 2 false alarms, 7 miscellaneous. Estimated damage was $176,314; value of property saved $275,695; total cost of equipment $41,000.

Three Reasons Why

There are three reasons why high pressure equipment has proved successful in Kent County:

1. It is more effective than the ordinary capacity type of equipment
2. It uses water more efficiently, which is of great importance in rural fire fighting
3. There is very little water damage after high pressure service

This has proved to Kent County volunteer firemen that high pressure fire equipment is the only type designed to fight rural fires.

One of the Bean High Pressure Fog Fire Fighters used by Kent County, Michigan, for Rural Fire Control

Training Motorcycle Officers

FOR a week, the National Guard Airport at Los Angeles hummed with the roar of police motorcycles. The entire enforcement squad of the police department has been undergoing a rigid re-training program in various phases of traffic enforcement, including the essentials of accident investigation and safe-riding precautions. Since the basis of any good accident prevention program is speed enforcement, special emphasis has been placed on accurate clocking of speeders.

The ability of the individual officer to check speed accurately is determined by requiring him to make several test chases of a specially equipped police car at various speeds. A button control on the handlebar of each police motorcycle automatically stops the speedometer at the maximum speed attained by the violator.

According to police traffic authorities, the speed enforcement program will continue. Results attained since the increased application of enforcement on April 1st are sufficient to show its effects. Comparing the first sixteen days of May with the same period in 1943, a 62.5 percent reduction has been experienced in the total number of traffic deaths in Los Angeles —nine as against 24!

Pedestrian fatalities have also been greatly reduced as a result of speed enforcement, police say. Los Angeles started out the year with a 65 percent increase in pedestrian deaths over January of the previous year. This rise has been progressively controlled to the point where pedestrian deaths are 13 percent over last year's toll.

Scotchlite Signs Please Philadelphia

FOR visibility and maintenance, the Scotchlite type of sign is excellent. Our Scotchlite signs were much cheaper to make than embossed metal signs and we have found them more effective because of their better visibility, particularly at night, and they cannot be mutilated as easily. They do not seem to get as dirty and require less frequent maintenance than other types of signs. We use the old metal sign plates, masonite, and wood as backgrounds for our Scotchlite signs."

ROBERT A. MITCHELL
Traffic Engineer
Philadelphia, Pa.

Put SAFETY FIRST in Road and Street Construction

"The United States cannot afford—socially or financially—the tragic waste represented by the 39,969 traffic deaths in the last pre-war year of 1941." *

Traffic safety has gained tremendously in importance. It was recently made the postwar aim of some 40 prominent national organizations, as announced through the National Safety Council. Officials who put Safety First in their maintenance and construction will receive the thanks and blessings of everyone.

Worn-out roads and streets will have to be reconditioned hurriedly . . . new arteries constructed without delay . . . to handle the expected, increased postwar traffic *safely!*

To put Safety First in postwar construction . . . and put it there quickly . . . use up-to-date equipment — fast-moving Allis-Chalmers tractors and Motor Graders, powered with General Motors 2-Cycle Diesel engines. Only modern machines can do the job right, in shortest time, at lowest cost! Consult your Allis-Chalmers dealer about your future equipment needs!

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

**Kenneth D. Colman, Seattle, Washington, businessman, head of a special committee that drafted postwar safety program for 40 national organizations. Sponsoring groups represented business and industry, labor, agriculture, war veterans, women, police, public officials and professional agencies interested in safety.*

Stop—Check and Mail

Please check over the following list of interesting catalogs obtainable free of charge and either write direct to the manufacturers for their literature, or, if you prefer, put a circle around the identifying numbers below to indicate the catalogs you want, mail this coupon to The American City Magazine, 470 Fourth Ave., New York 16, and we will see that catalogs are sent to you without expense or obligation on your part.

10/44

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Name ---------- Position ----------

Address ----------

Identify Vehicle Tax Payers

399. Identification of vehicle tax payers can be insured and simplified with Meyercord Licenseals. These seals cannot be lost, stolen or counterfeited, are washable and require no rivets, bolts or screws. For full information on how they can aid your city write Dept. 58-9, The Meyercord Co., 5323 West Lake St., Chicago 44, Ill.

Searchlight for Night Emergencies

400. If you want to be prepared for night emergencies in any of your municipal work you will want to have the circular matter being offered by U-C Lite Mfg. Co., Dept. AC, 11 East Hubbard St., Chicago 11, Ill., on their Big Beam Portable Electric Searchlight. This literature discusses the features of the Big Beam that gives daylight visibility and projects a beam for a distance in excess of 2500 feet, as well as the interchangeable lens that make it possible to provide the same volume of light over a wider surface.

Portable Asphalt Plants

401. Street superintendents who have observed a need for a portable asphalt plant in their work, may secure a catalog from the White Mfg. Co., Elkhart, Ind., discussing their plant and the advantages and economies it will effect.

Water Meters Again Cased in Bronze

402. Worthington-Gamon Meter Co., 282-296 South St., Newark 5, N. J., is again manufacturing its Watchdog water meters with bronze cases, sizes ⅝ to 1 inch only. Literature may be obtained from the company giving details on these meters that are made in standard capacities from 20 gpm up. The bulletin will give you data on the construction of the meter showing how all parts are interchangeable, and details on its maintenance.

Check Valve for Noiseless Operation

403. If you are interested in having valves in your water works plant that will assure you of operating efficiency and noiseless operation, you will want to look into the Smolensky Radialflow Noiseless Check Valves which eliminate water hammer. Information may be obtained from The Smolensky Valve Co., Inc., 940 Broadway, Bedford, Ohio.

Save Time on Closing Gate Valves

404. Printed matter from Payne Dean & Co., Laconia, N. H., will give you information on its mechanical gate operator that will save you many man-hours of work. This literature gives details on this operator, how it can be mounted on any truck, the amount of time it takes to complete a job, and how it closes the largest gate under unbalanced flow.

Diesels for Power

405. Municipal power plants making replacements now or in the future will be interested in details from the Sterling Engine Co., 1290 Niagara St., Buffalo 13, N. Y., on their new Sterling Viking Diesel. This is a compact medium-duty power plant reputed to give heavy duty performance on two-thirds of the amount of fuel consumed by a gasoline model of similar rating.

Information on Sluice Gates

406. The Chapman Valve Mfg. Co., Indian Orchard, Mass., will send you a copy of their Sluice Gate Handbook giving full details about this equipment including dimensions and specifications. You will find information on the interchangeable stems and couplings that need not be match-marked, thus making possible quick installation. The gates can be supplied in any type of operating control you need.

Avoid Odors and Tastes in Water

407. If tastes and odors in your water supply are causing you trouble you will want to look into the use of Aqua Nuchar Activated Carbon. Industrial Chemical Sales, Division West Virginia Pulp & Paper Co., 230 Park Ave., New York 17, N. Y., will send you information on this material which explains how a clear, palatable water may be obtained by its use.

Filters from Anthracite

408. Learn all the facts about using Anthrafilt as a filter medium. Literature is available from the Anthracite Equipment Corp., 101 Park Ave., New York 17, N. Y., giving you detailed information on the material of which Anthrafilt is made, where it can be used, and its advantages to your plant.

Microscope for Detailed Studies

409. For any work requiring study of minute surface details use may be effectively made of the RCA Electron Microscope. A new 16-page booklet is being offered by the Electron Microscope Section, Dept. 115, Radio Corporation of America, Camden, N. J., giving information on this instrument that makes possible magnifications up to 200,000 times, and details on its use and application.

Calcium Chloride in Concrete Work

410. Street construction men will be interested in a copy of Bulletin 28 "Early Strength Concrete" published by the Calcium Chloride Association, 4145 Penobscot Bldg., Detroit 26, Mich. This discusses the action of calcium chloride in concrete for quick curing and greater strength, and lists its many advantages including the fact that it makes concreting possible in cold weather, and effects economies through its quick action.

Modern Tax Records System

411. Are records in your tax office in shape to give you the most efficient service? Why not write Underwood Elliott Fisher Co., One Park Ave., New York 16, N. Y., for full particulars on their Sundstrand Modern Tax Billing and Accounting Machine and learn how it can be used by you to same money, time and personnel.

Fence for Public Property

412. Since all municipal property to be effectively protected should be fenced you will want to have a copy of the 32-page booklet on fences offered by the Cyclone Fence Division, American Steel & Wire Co., Waukegan, Ill. This illustrated booklet gives full facts and specifications on Cyclone fence and shows the different types that are available to municipalities.

Ice Control with Spreader

413. If ice control is one of your problems every winter, you will want to look into the literature being offered by The Flink Co., Streator, Ill., on their one-man spreader. This printed matter lists the many advantages of this machine including the fact that it fits any size truck and its operation is entirely controlled within the cab of the truck. The spreader operates forwards and backwards, full or half widths on streets, thin or thick material up to one inch.

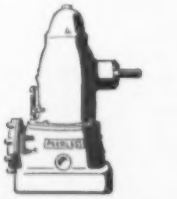
Centrifugal Pumps

414. Information about pumps that have received extensive laboratory tests before distribution is the subject of a catalog being offered by the Carver Pump Co., Muscatine, Iowa. This literature explains why Carver certified centrifugal pumps are ready for immediate delivery and lists design data and information on the wear and tear the pump will take.

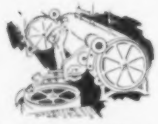
(Continued on page 21)

BEAN
Orchard and Crop
SPRAYERS
Represent 60 Years of Engineering and Manufacturing Leadership!
Since 1884, the name "Bean" has meant the finest in pest control equipment. Today, many thousands of Bean High-Pressure Sprayers are in use in every agricultural area throughout America and in many other parts of the world. The extraordinary designing, manufacturing and engineering "know how" gained through the building of Bean Sprayers and other FMC equipment, made possible the "Water Buffalos," the amazing amphibious tanks fighting with the Army and Navy. New and even better FMC equipment will serve the nation tomorrow.
ARMY NAVY
LAKELAND
RIVERSIDE
HOOPESTON
LOS ANGELES
FOOD MACHINERY CORPORATION
EXECUTIVE OFFICES: SAN JOSE, CALIF.
Bean Sprayers are manufactured by Bean-Cutler Division, San Jose, California and John Bean Mfg. Co. Division, Lansing, Michigan.
BEAN

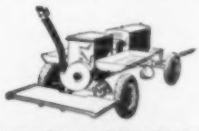
Other Typical FMC Products



PEERLESS PUMP DIVISION
Deep well turbines, hi-lifts & pumps handling water for all purposes. Los Angeles, Fresno, California; and Canton, Ohio.



Anderson-Barngrover Division Complete line of machinery for canning foods. San Jose, Calif.



Niagara Sprayer & Chemical Co. ... Insecticides for protecting crops from insects and diseases. Middleport, N.Y.; Jacksonville, Fla.; Burlington, Ont., Canada.

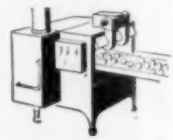
John Bean Mfg. Co. Fog Fire Fighters, Automotive Service Station Equipment, Bean Royal Spray Pumps. Lansing, Mich.

Riverside Division. Citrus Packing Equipment, Automatic Box Making & Lidding Machinery, Fruit and Vegetable Protective Processes. Riverside, California.

Florida Division ... Citrus and Vegetable Packing Equipment, and Food Protective Processes. Dunedin and Lakeland, Florida.

"Water Buffalo" amphibious tanks. 7 of Food Machinery Corporation's 14 major factories are making "Water Buffalos" or sub-assemblies.

Sprague-Sells Division. A complete line of food canning machinery. Hoopeston, Illinois.



Texas Division ... Food Protective Processes, Fruit & Vegetable Packing Equipment, Canning Machinery. Harlingen, Texas.

Check These Columns—and Use Coupon on Page 19

(*Continued from page 19*)

Equipment for Sewage Filtration

415. In planning your post-war sewage plant, the subject of sewage filtration may be amplified by information on Eimco filters, available from The Eimco Corp., Salt Lake City 8, Utah, showing the difference between their filters and sand beds for drying sewage sludge, and how this equipment is designed to meet varying local conditions.

Fire Hose Easily Loaded

416. Bi-Lateral fire hose offers certain advantages that will aid your department. Information may be obtained from the Bi-Lateral Fire Hose Co., 20 N. Wacker Drive, Chicago, Ill., giving you details on the construction and the advantages of their rubber-lined hose including information on its loading capacity.

Gas Engines for Municipal Plants

417. Information may be obtained from The Rathbun-Jones Engineering Co., Toledo, Ohio, on its gas engines, which are equipped with water cooled exhaust valves and oil cooled pistons. One of the important features is the absence of the customary flywheel which the generator rotar has been designed to supplant.

Lay Pipe Without Trenching

418. Pipe laying operations in your city would be simplified by the use of the Giant pipe pusher. A booklet is available from the Giant Mfg. Co., Dept. P., Council Bluffs, Iowa, describing this tool that pushes pipe up to 15 inches through the ground at the rate of 1 to 5 feet per minute avoiding the expense of trenching.

Pumps for Fog Fire Fighting

419. The effectiveness of your fog fire fighting depends largely on the pump you use. Literature is available from The Hardie Mfg. Co., Hudson, Mich., giving detailed information on their pumps which deliver 35 to 60 gpm at nozzle pressures of 500 to 800 pounds. Information is given about pump cylinders, the rate at which pressures are reached, operation and construction details.

Aid for Removal of Snow and Ice

420. Are your streets going to be free from ice this winter? A bulletin is available from the International Salt Co., Inc., Dept. AC-9, Scranton, Pa., giving facts on the solution of your snow and ice removal problems. Learn how Sterling "Auger Action" rock salt, applied early in a storm prevents snow from packing and bonding, thus making removal work easier for your crews.

Swimming Pool Designs and Consultation

421. A 50-page pamphlet, actual pool pictures, and other data having to do with types, sizes, and costs are available from Wesley Bintz, Consulting Engineer, 215 Spencer St., Lansing 15, Mich., on the unique type of swimming pool he has developed. If your community is discussing the subject of swimming pools for your post-war city, this information will show you the advantages of the Bintz pool over the sunken pool and the rectangular pool, and the savings its effects.

Chlorinate Sewage to Prevent Odors

422. Chlorination of sewage ahead of the plant and at the plant provides you with a means of combatting odors caused by hydrogen sulphide and other products of decomposition. Wallace & Tiernan Co., Inc., Newark 1, N. J., will gladly recommend the type of chlorinator best suited to meet your needs.

Hydrants Easily Repaired

423. If the repair of hydrants in your community is costly, information on the Mathews hydrants manufactured by R. D. Wood Co., 400 Chestnut St., Philadelphia, Pa., will be of interest to you for your post-war plans. These hydrants are equipped with a barrel that can be unscrewed and a new one put in its place. The broken barrel may be repaired at your convenience.

Water Connection Under Pressure

424. If you are faced with the problem of making extensions to your existing pipelines, this may be easily accomplished without interrupting the continuous flow of water to other points on the line. The tapping machines manufactured by The A. P. Smith Mfg. Co., East Orange, N. J., may be used to make the necessary branch connection. The company will supply you with further details on this machine which makes taps from 2 to 42 inches.

Plan Adequate Fire Alarm Signalling

425. Property and lives in your community can be needlessly wasted if your fire alarm system is inadequate in any way. The Stanley & Patterson Division of Schwarze Electric Co., Adrian, Mich., have prepared booklet No. 1044 aimed to assist in promoting safety by helping you select suitable, adequate and reliable fire alarm signalling apparatus.

Sanitary Fill Method of Refuse Disposal

426. Hi-Way Service Corp., 3841 W. Wisconsin Ave., Milwaukee 8, Wis., offers "Answer to Your Waste Disposal Problems . . . With the Drott Bull Clam Shovel," discussing the use of the Drott Bull Clam Shovel for the sanitary fill method of refuse disposal. It contains detailed description of the sanitary fill method, showing how the equipment is used to dig the trenches into which the refuse is dumped, compacted and covered with top soil. The booklet shows the advantages of the system and points out how it eliminates odors and smoke, breeding places, and unsightliness.

Street Maintenance Equipment

427. Street officials interested in types of maintenance equipment may secure valuable data from Standard Steel Works, North Kansas City, Mo., on its asphalt distributors, tar kettles, maintenance distributors, burners, street flushers, spray units, supply tanks and surface tanks.

Graphic Instruments

428. An informative and readable catalog of instruments for measuring water levels in distant tanks and steam pressure at remote distributing centers and for maintaining graphic records of liquid level, volts, amperes, watts, pressures, and time may be secured by writing to The Esterline-Angus Co., Inc., Indianapolis, Ind., for catalog 142-A.

Dump Truck System with Multiple Bodies

429. Catalog No. 44 of the Brooks Equipment and Mfg. Co., Knoxville, Tenn., explains the Load Lugger system as a method of moving material where it is necessary to use hand labor. This method involves the use of several containers or bodies referred to as buckets with each Load Lugger equipped truck. Illustrations show the steps involved in its operation. The bulletin lists the advantages of the Load Lugger system and operational data, and points out that when the buckets are not in use the truck may be used for ordinary hauling purposes.

Fire Extinguisher Movie for 50 Cents

430. How and why fire burns, and the appropriate extinguisher for each type of blaze and its correct use, are shown by a 20-minute 16-mm. Kodacrome sound film available to fire departments. It illustrates common errors in industrial first aid fire-fighting and gives tips on fire prevention. Write to Princeton Film Center, Princeton, N. J., for bookings at 50c to cover handling costs of "Flame Facts" produced by Walter Kidde & Co., 140 Cedar St., New York 6, N. Y.

Cutting Ice, Ruts Off Streets

431. The latest in underbody truck graders and center plows for all-year-round maintenance of airports, roads, and streets is available to municipalities. Used by the United States and Allied Armies for war work, these machines embody many improvements over earlier types. Write for Catalog 344 offered by the Willett Mfg. Co., Grand Rapids 8, Mich.

Mechanical Joint for Cast Iron Pipe

432. Bulletin No. 441A published by the Dresser Manufacturing Co., Bradford, Pa., describes the Dresser Bellmaster, a mechanical joint for cast iron pipe. Data is given on the features of the joint including its flexibility, tightness, permanence, and speed of installation. The catalog illustrates the steps necessary to install this joint.

Data on Parking Meters

433. Full information is available from The Karpak Corp., Cincinnati 6, Ohio, on its automatic parking meters. Here is an opportunity for municipalities contemplating installation of parking meters to learn all about the operating features, mechanism, and performance record of this meter.

Steel Street Lighting Standards

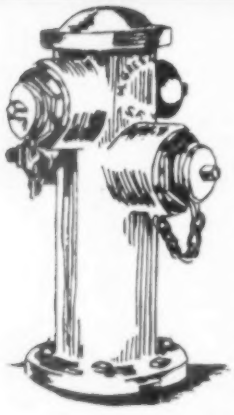
434. Tapered steel street lighting standards manufactured by the Union Metal Mfg. Co., Canton 5, Ohio, will fit into street lighting systems for any size town. The company will send you details on adequate street lighting systems to suit your particular community.

Equipment for Garbage and Sewage Reduction

435. Sanitary engineers interested in garbage and sewage disposal will find of value bulletin 0491, published by the Gruendler Crusher and Pulverizer Co., 2915-17 North Market St., St. Louis 6, Mo., on its equipment for this purpose. The bulletin contains information on the work of its sludge and screenings grinder, garbage shredders, and incinerator shredders which are equipped with hopper and apron conveyors. Cross-sectional views are given, specifications listed, and typical installation data shown.

(*Continued on page 22*)

A COMPLETE HYDRANT SERVICE



Originators of the CALIFORNIA type of Hydrant, with INDIVIDUAL, integrally constructed globe type valves on all outlets. We have manufactured and sold this type of Fire Hydrant with its various improvements continuously for over seventy-five years. This is the Fire Fighter's Ideal Hydrant for use in non-freezing climates. Sold through your jobber.

FOR THE COMPLETE
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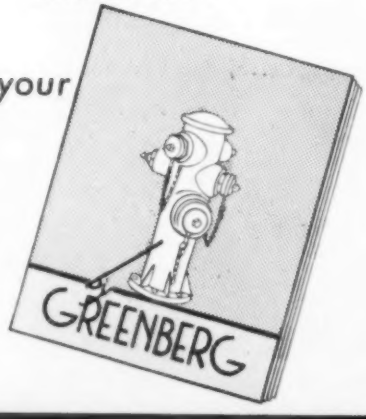

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Since 1854

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CHECK THIS COLUMN— AND USE COUPON ON PAGE 19

(*Continued from page 21*)

All-in-One Traffic Signal

436. If you are planning post-war installation of traffic signals why not write now for complete information on the Aroway signals? Data is available from Aroway Traffic Signals, Inc., Johnson City, Tenn., discussing this signal that will help you simplify traffic control. These signals are so designed as to be complete at one focal point and eliminate all additional signs that might be needed to point out No Left Turn, No U Turn.

Board for Damp-proofing and Insulating

437. If you find it necessary to damp-proof or insulate under wood, metal, or concrete, why not look into the Servicised rigid board sheathing. Literature is available from the Servicised Products Corp., 6051 W. 65th St., Chicago 38, Ill., on this sheathing which consists of an asphalt mastic between two sheets of saturated felt.

Machine for Marking Traffic Lines

438. Clearly marked center lines, parking areas, crosswalks and safety zones will simplify your traffic control problems. Descriptive literature is available from the Meili-Blumberg Corp., Box AC-8, New Holstein, Wis., that will show you how the M-B Marker simplifies your striping jobs. It is also possible to convert this machine into an all-purpose paint sprayer.

Concrete Construction for Highways and Streets

439. If you are planning urban highways or streets that will be heavily travelled in the post-war period, the Portland Cement Ass'n., Dept. 8-4, 33 W. Grand Ave., Chicago 10, Ill., offers the assistance of its engineers to help you work out that most economical concrete pavement designs.

Steel Grandstands

440. Are you planning to build a grandstand in your community after the war? Pittsburgh-Des Moines Steel Co., 3412 Neville Island, Pittsburgh, Pa., manufacturers of steel deck grandstands are ready to help you plan one for your community.

Aluminum Sulfate for Water Works and Sewage Plants

441. Aluminum sulfate for use in water purification and sewage disposal plants should be familiar to all city officials in charge of this work. Data are available from the General Chemical Co., 40 Rector St., New York 6, N. Y., that will give you complete information on the work this does including making water clear, producing longer filter runs in water works, and in sewage treatment work the precipitated sludge digests readily and treated digested sludge dries quickly and without odor.

Precalked Pipe

442. Details on their pre-calked pipe may be obtained from the McWane Cast Iron Pipe Co., Birmingham 2, Ala., showing you how easily it can be installed. The pipe comes with the wedges placed in the pipe bells and by socketing the spigot and calking your job in done.

Pressure Concrete for Repairs

443. Illustrative literature is available from the Pressure Concrete Co., First National Bank Bldg., Florence, Ala., showing what work has been done with Gunite on repair jobs and new construction. Gunite may be utilized in your city for all types of masonry work especially pre-stressed tanks, reservoir lining, smoke stack lining, steel encasements, dam repairs, tunnel lining and sewer lining. The catalog discusses the qualities of this product that makes it suitable for this work.

Jointing Cast-Iron Water Mains

444. Jointing of cast-iron water mains may be effectively done by the use of Leadite manufactured by The Leadite Co., Girard Trust Co. Bldg., Philadelphia 2, Pa. Leadite is melted and poured, making it unnecessary to dig large bell holes.

Non-Fading Copies of Municipal Forms

445. Multilith Systemat is a heavy master sheet of paper on which a permanent form has been preprinted. It can be profitably used in all cases where information to be reproduced consists of standard forms or data to which variable information has to be added by writing, typing, addressograph, tabulators, billing machines, or teletypewriters. The kind of Systemat to be used depends solely on the number of copies desired—up to 200; up to 250; up to 2,500. The advantages are that every form is an original black and white; there is a single sheet of paper to handle; no carbon paper to insert or remove; permanent non-fading copies; almost any kind of paper suitable; clean operation; no need to purchase printed forms; simplifications and low cost. Cities are looking into this method. Send for catalog to the Addressograph-Multigraph Corp., Cleveland, Ohio.

(*Continued on page 24*)

Save...

Time, Money and Labor in making pipe joints

« « « The only field equipment necessary to make a Universal Cast Iron Pipe Bolted Joint is a Ratchet Wrench.

by using

UNIVERSAL
CAST IRON PIPE

(PIPE and JOINT are ONE)

Outstanding Advantages:

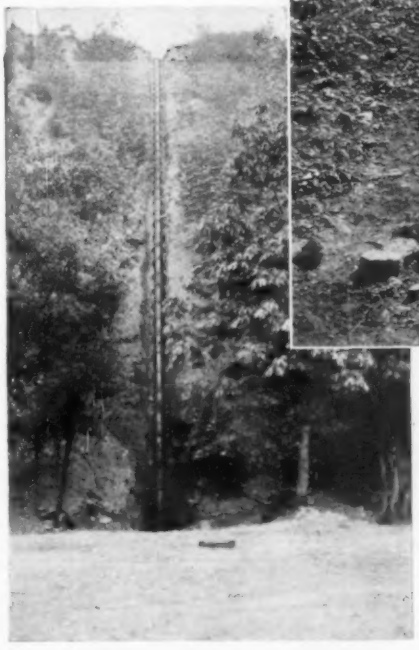
1. *No calking or pouring of lead or lead substitutes. No gaskets used.*
2. No bell holes to dig. Can be laid in a narrow trench. Cost of wide trenching is eliminated.
3. *Can be laid with SPEED. Easier and cheaper to install because only two bolts need to be inserted in the lugs, tightened with a ratchet wrench (the only tool needed), and the completed joint is made in a few minutes. Experienced workmen are not needed.*
4. Nothing to deteriorate; nothing to work loose; no leakage; no maintenance cost.
5. Flexibility: Universal pipe is very flexible. It withstands expansion, contraction, unequal settlement, vibration and shock, and electrolysis. Many curves are laid with straight lengths and do not need special fittings.
6. *Universal pipe can be laid on rocky soil, under water and in sub-zero weather.*

Specify UNIVERSAL PIPE for water mains and sewers

Furnished in hot tar dipped, cement lined, and enameline lining.

Quick service to customers: By rail, truck or water from our foundries and warehouses located from coast to coast.

THE CENTRAL FOUNDRY CO.
386 FOURTH AVENUE, NEW YORK 16



Above *All straight lengths of Universal pipe in this curve.*

At left *16" pipe laid on a 45-degree slope. Note deflection at top to level ground without fittings.*

USE THE COUPON

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THE CENTRAL FOUNDRY COMPANY
386 Fourth Avenue, New York 16

I am interested in SAVING LABOR, TIME, MONEY and EQUIPMENT in pipe-laying. Send me the UNIVERSAL catalog.

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Position .....

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BUFFALO-MADE AMERICAN BRONZE-CASE WATER METERS

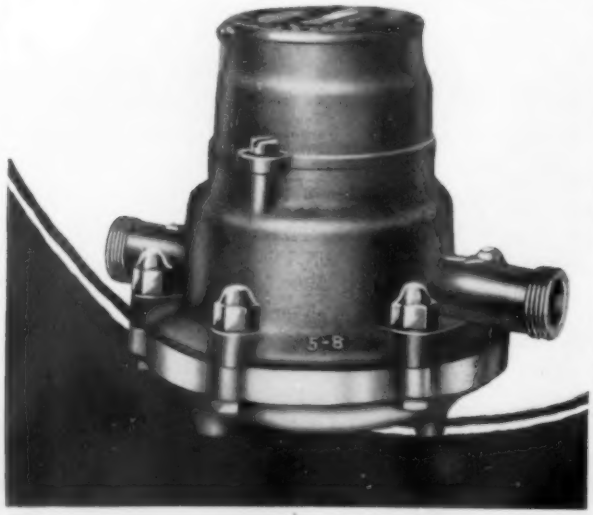
The quality and performance you want in post-war meters are already being built into every Buffalo-made water meter.

With bronze-case meter manufacture resumed, waterworks can plan now for the metering programs delayed by war conditions.

Full information and prices on request to

BUFFALO METER COMPANY

2902 Main Street Buffalo 14, N. Y.



CHECK THIS COLUMN— AND USE COUPON ON PAGE 19

(*Continued from page 22*)

Keep Fire Hose in Service

446. Fire departments can now dry hose in a minimum amount of time. Information is available from The Circul-Air Corp., 6339 Palmer Ave., Detroit 11, Mich., on their fire hose dryer giving details on its construction, showing how quickly it dries hose, and eliminates the need for drying racks that take up a lot of room.

Right Angle Pump Drive

447. Catalog No. 12 is being offered by the Johnson Gear & Mfg. Co., Ltd., Berkeley, Calif., on their right-angle pump drive. Used as a connecting unit between the pump and the power, it comes in a variety of types and sizes and is designed to meet specifications of a wide range of applications including sewage disposal, water supply, fire-fighting and flood control.

Sign Guide for Cities and Counties

448. Cities and counties can now purchase steel reflector signs as before the war. The Cataphoe Sign Guide lists signs available and suggests the proper sign for the place where it is needed. Write to Cataphote Corp., Toledo, Ohio.

Sewer Cleaning Equipment

449. A complete catalog of sewer cleaning equipment is available from the Expanding Sewer Machine Co., Nappanee, Ind. Details are given on the equipment, sizes, models and accessories and the work they do.

Fence Out Trouble

450. Are you thinking of fencing in some part of the property in your community after the war? The Stewart Iron Works Co., Inc., 1121 Stewart Block, Cincinnati 1, Ohio, are ready to offer suggestions and estimates on the use of their chain link wire fence for this purpose.

Cut Your Garbage Collection Costs

451. Illustrated Bulletin No. 27 available from Gar Wood Industries, Inc., Detroit 11, Mich., on the Gar Wood Load Packer will give you information on this equipment, including data showing how municipalities have cut collection and hauling costs through its use. Learn what the Load Packer can do in your community to improve your garbage collection system.

Tar and Asphalt Heater

452. Airport, street, and road maintenance officials will find of interest Bulletin No. 194 AC published by Aeroil Burner Co., Inc., West New York, N. J. This gives complete information on the Heet-Master, now obtainable on pneumatic tires showing how easily and quickly it works and how much material it is able to produce.

Speedy Installation on Water and Sewer Pipe

453. Johns-Manville, 22 E. 40th St., New York 16, N. Y., offers complete information about the speedy installation, and the high delivery capacity of Transite Sewer Pipe in brochure TR-21A. For details on lower-cost water transportation write for Transite Water Pipe Brochure TR-11A.

Fabrics for Public Uniforms

454. Do you include uniforms for your community's public servants in your post-war plans? Then you will want to look into the fabric group manufactured by Reeves Brothers, Inc., 54 Worth St., New York 13, N. Y. Fire, police, guards, and bus drivers need uniforms that will stand wear and tear and still tailor smartly.

Raise Sunken Concrete

455. Street and airport maintenance men can cut costs with the Koehring Mud-Jack Method. The Koehring Co., Milwaukee 10, Wis., have a new Mud-Jack bulletin illustrating and describing this equipment for raising sunken concrete walks, curbs and gutters, highways, streets and airport runways, thereby eliminating reconstruction costs.

Honor Rolls

456. Your municipality may be planning to honor her favorite sons now in service with an honor roll. Literature is offered by the International Bronze Tablet Co., Inc., 36 E. 22nd St., New York 10, N. Y., on many designs and sizes of plaques for this purpose.

Chemical for Potable Water

457. Water treatment plants, sewage disposal plants, and swimming pool operators making use of chemicals to provide safe water will be interested in a folder being offered by Hood Chemical Co., Inc., 1819 Broadway, New York 23, N. Y. This discusses Hoodchlor High Test Calcium Hypochlorite, and how it makes water potable.

Vol. LIX, No. 10 The American City October, 1944

Water Works Ski-Troopers

Los Angeles Board of Water and Power uses snow survey to forecast water supply

By H. A. VAN NORMAN*
General Manager and Chief Engineer
Department of Water and Power
Los Angeles, Calif.

MANY people consider ski-troopers as a sort of modern innovation typical of our wartime years, like the Commandos or the dive-bombers. However, Los Angeles has had its own corps of ski-troopers for the past 17 years that have helped defend it against that very real enemy, the drought. Their job has been not only glamorous but also highly vital, doing what possibly every city using surface water as its source of supply would like to have done—that of taking the guesswork out of estimates for the next year's water supply.

A bird's-eye view of the watershed reveals five key basins stretching along a hundred-mile crest. The area supplies over two million people with water as well as irrigation for a large agricultural tract. Los Angeles has to depend on winter and spring precipitation for its water. The weather man inconsiderately refuses to ration the water at so much per month, consequently we must keep our own reserves and know how we stand when we go into the arid summers.

The routine we evolved to secure this information includes a careful snow survey and studies of other limiting factors such as precipitation during run-off.

The five key basins forming a network from north to south are Mono, Mammoth - Minarettes, Rock Creek, Big Pine, and Cottonwood. Each basin varies in the amount of run-off from year to year; and also has characteristics differing from the other basins. For example, the presence of glaciers in Big Pine contributes a variable factor which only experience and a knowledge of existing conditions can accurately assess.

The first step was to establish a series of "courses" throughout the area where snow measurements would reflect cover for that particular area. Although our hydrographer, George Lewis, had practically no precedent to guide him he made his choices so skillfully that practically no changes have been necessary.

The next step was the organization of camps and crews. There are three base camps all within a day's travel on skiis. From two to four men make up the survey crew.

From the first, skiis proved the most satisfactory means of negotiating the rough terrain of the High Sierras. Unfortunately, in 1925 no one knew much about the art of skiing and our original ski-trooper, looking back to the early survey trips, wonders how he escaped with his neck.

It was a happy day when skiing became an American sport. Now with an army of youngsters out every season giving each new bit of equipment and every new technique the "works," the pioneering necessary in the early days is only a source of humorous yarns.

For this particular area our men use a 7½-foot brass-edged ski equipped with toe clamp and heel strap. Two ski poles replace the one pole used originally and seakskin climbers take a lot of the drudgery out of the work. Our men estimate that they save one-third the time it formerly took to negotiate a climb without them.

Each surveyor carries a 40-pound pack containing his tubes and instruments and a supply of four types of wax. Snow textures often vary over a single day's run and the wax needed to treat the ski for the various snow conditions must be readily available.

The illustrations show the various procedures used in sampling a course. The snow scale is calibrated yearly at the beginning of the season. Originally four surveys were made annually. We found, however, that two yielded sufficient information except when unusual precipitation occurred after the final survey.

A brief explanation of the methods we use in forecasting, is given in the following notation:

Snow surveying as conducted by the Los Angeles Water Department and illustrated on the following page consists of the following steps:

1. *A crew of two men, each equipped with a 40-pound pack containing the necessary instruments, and wearing a pair of brass edged skis and carrying ski poles, proceed to the starting point of the day's sampling course. Each sampling course is located where the physical characteristics of the soil and snow cover reflect the average for that particular basin.*

2. *Here samples are taken at carefully measured distances by driving the sampler pole into the snow to the base of the snow cover.*

3. *Then, when the sampler pole is removed, a tube at its base contains the snow sample. The whole shaft is suspended in a cradle and the water content read directly from the scale.*

4. *Each reading and its location is recorded.*

5. *From these records, carefully analyzed, a forecast of the water supply for the coming season is worked out.*

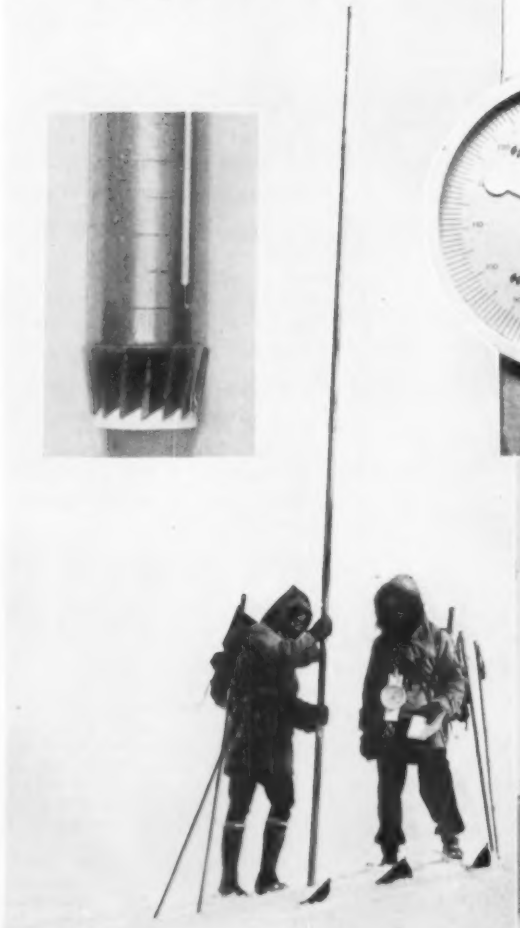
"The courses located upon the several stream systems are given an area factor due to elevation affected. This factor is the percentage that the area of each course bears to the entire area of the stream as determined for the snow survey uses.

"The water content as determined from the field notes is corrected by the area factors and this 100 percent; or adjusted water content for the stream system used in making the forecast of that stream for the survey.

"Several schemes for obtaining estimates are used, the average of all reasonable ones being the final answer. The use of normal water content in conjunction with the stream flow record for the past and the present maximum water content adjusted by the area factor is the first scheme usually used.

"Another scheme is the comparison of similar years as to the water content and run-off of streams; a third is the use of the water content modified by a snow cover factor, again with the stream run-off; a fourth is that set out in the California State 'Direct Method.' In fact, as many schemes are used as can be devised upon the data at hand."

* See footnote at end of article.



UPPER LEFT: *Ski trooper carries tubes and instruments in specially built cases when on the trail.*

UPPER RIGHT: *During heavy storms the only successful mode of transportation in the High Sierras is by dog team.*

CIRCLE: *Close-up of the dial spring-balance which measures the water content of each sample in inches and will record up to 450 water inches.*

LOWER LEFT: *Cutting a core through 17 feet of snow. When the tube (cutting end shown in insert) is withdrawn, a slight shoulder on the inside of the bit retains the core, and tube and core are weighted or measured by the instrument which is suspended by a thong around the neck of the surveyor at the right.* INSERT: *Sampler tube with cutting bit. Notice gradations stamped in metal and the visibility of the snow core through the narrow slot on the right side of the tube.*

LOWER RIGHT: *When the tube with its core is suspended to the dial, the water content of the core can be read directly from the scale and recorded.*

Following the completion of each survey, our engineers make their forecasts. The February forecast is of a preliminary nature and is used in conjunction with power budgets and agricultural uses in the Owen's Valley and Los Angeles area. The final forecast is made in April unless late storms necessitate further surveys.

Various factors affect the accuracy of the forecast. George A. Lewis, our hydrographer, believes first honors should go to precipitation, occurring either after the final surveys or during run-off.

All other factors influencing the ultimate success of the survey, such as percolation, evaporation, transpiration, temperature variation are more or less stable. Their combined effect is taken into consideration and in our experience any fluctuation is of such slight moment as to affect but little the final results.

The department maintains 30 precipitation stations, mostly below normal snow line. At stations where the expense of installation is not prohibitive, we use mechanical measuring devices, such as venturi flumes.

Advance information as to annual run-off allows the department to restrict the use of irrigation water, in order to conserve the municipal supply, and to prepare for the need of pumping auxiliary wells. It also facilitates the solution of maintenance and storage problems, and in every way provides a more flexible and efficient water system. Budget and power uses are prepared and allotted months before run-off is over in full confidence that the supply will be definitely within a certain range. Thus, the annual water supply forecast is filling a number of our needs, not the least of which is that good will resulting when the average citizen of Los Angeles knows what is to occur beforehand and, duly prepared, loses no confidence in his Water Department if his water supply must be curtailed.

EDITORIAL NOTE.—Since this article was written, Mr. Van Norman has retired after 37 years of service with the Los Angeles utility, extending from his employment as construction foreman on the Los Angeles Aqueduct in 1907 to his position as head of the half-billion dollar water and power systems.

Succeeding Mr. Van Norman as general manager and chief engineer of the Los Angeles Department of Water and Power is Samuel B. Morris, who comes to his new position from Stanford University where he was Dean of the College of Engineering.

Anderson, Indiana, Settles Its Sewerage Problems

By R. R. BAXTER
Superintendent
Sewage Treatment Plant

UTILIZING *the interesting Guggenheim process to treat a heavy industrial waste load, the plant shows the effect of careful management in solving a touchy sludge disposal situation, and in meeting wartime personnel and plant maintenance problems.*

ANDERSON, IND., was a city of 41,572 inhabitants according to the 1940 census, and now it has a population of 55,000, a little more than 32 percent increase in four years. The city is decidedly an industrial center with approximately 100 diversified lines of manufacturing. In June 1940 a sewage treatment plant designed for an 8-mgd flow and embodying the Guggenheim Biochemical Process was put in operation. At that time sludge from the plant was vacuum filtered and then incinerated for final disposal. Because the sewage contained large amounts of chemical wastes with a high percentage of inert matter from a large ceramic manufacturing concern, incineration was difficult and costly.

Upon taking over the plant at the beginning of January 1943, this method of sludge disposal had virtually broken down. The incinerator had been out of use for some 60 days or longer. The sludge was, however, still being filtered through the vacuum filters and the filter cake was hauled in trucks and piled on the grounds around the plant which was not only very unsatisfactory but expensive as well.

Disposal of Liquid Sludge

Consequently, we made immediate study of other methods that might improve general conditions and at the same time reduce costs. Since the plant is surrounded by some sixty acres of ground, we decided to use this area, pumping the sludge from the digester to different parts of the grounds through long lengths of fire hose.

When this method occurred to us, we received little encouragement. There was considerable apprehension among many sewage works operators as to the troubles that we might encounter when summer approached. Fortunately for us, the coming of summer with its more intense sunshine and higher temperatures actually proved to be of great help to us.

This procedure, started in March 1943 has proved very successful. During the summer and fall we plowed the fields that had been heavily coated with sludge and found the ground ready to receive additional applications of liquid sludge. As compared with filtering and incineration this method has proved very economical.

The plant which is equipped with only one digester supplied sufficient digestion for incineration, but because digestion time was only a maximum of

A view of the Anderson, Ind., plant's attractive main building.

Miss Helen Wurtenberger, graduate biochemist, represents a draft-exempt solution to a wartime personnel problem.

ten days many sanitary engineers felt that odors would be produced from large quantities of partially digested sludge distributed over the farm. In actual practice this method of sludge disposal, even with less than ten days digestion period, has caused no objectionable results and our close neighbors assure us that there are no odors.

Personnel

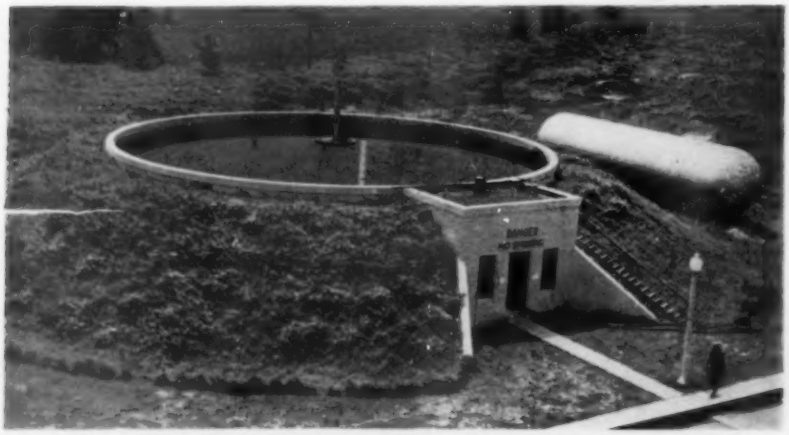
Other problems had to be met early in 1943. The plant chemist, inducted into military service, was replaced by Miss Helen Wurtenberger, graduate biochemist, and the entire male personnel has been replaced by men well beyond the age limits set up by the war department. The average employee's age is now 54.4 years. Another woman, Mrs. Roberta Jackson, wife of a Seabee, took over the secretarial and general office work early in the year.

During the spring and summer of 1943 a great deal of work was done in and around the plant. Equipment was all overhauled, the grounds were landscaped, and the interior of the plant completely redecorated. All of this was made possible when new methods of operation, principally in sludge handling, enabled us to show a large increase in profit over the previous year.

We feel that through our program of beautification we have also reaped profits not measurable in dollars and cents but of an even higher value. Each of the employees has had a part in improving the plant; as the work progressed interest in the program mounted until now each member is personally proud of the beauty, order and efficiency each has had a part in achieving.

Many Visitors

The plant with its appearance of well-being has attracted a great many visitors who have expressed their appreciation to the workers for the job well done. This sign of appreciation on the taxpayers' part adds an even greater impetus to our organization for higher achievements.



The lone digester used by the Anderson plant. When the emergency sludge disposal system was adopted, there was some doubt as to the ability of the digester to serve adequately. Subsequent experience has removed this doubt.

Description of Plant

From this discussion of the solution of our operating problems let us look at the plant itself. It was designed by Russell B. Moore Co., Consulting Engineers of Indianapolis, Ind., and uses the Guggenheim Biochemical Process of sewage treatment.

The primary settling tanks are the rectangular type wih Link-Belt Straightline mechanically operated flights. There are two primary settling tanks, each measuring approximately 106 feet by 40 feet by 12½ feet in depth at the deep end. The primary effluent passes through a flume directly in back of the building where the chemical dosage is introduced, and here returned sludge is added to maintain a solids content of 1,300 to 1,400 ppm. From this point on to the aeration tanks, sufficient air is introduced to effect thorough mixing and to prevent any settling of chemicals or sludge until the primary effluent reaches the aeration tanks. There are two aeration tanks measuring approximately 108 feet by 44 feet by 10½ feet deep from water level. Aeration is effected through the use of Chicago Pump Company's swing diffusers.

From the aeration tanks the mixed liquor flows by gravity to two Link-Belt Circuline final settlers, each of which is approximately 90 feet in diameter with an axis depth of 11½ feet and a peripheral depth of 8 feet.

For sludge handling, the plant as originally designed is equipped with one Pacific Floating Cover digester 65 feet in diameter with approximately a 24 feet working depth; one thickener tank approximately 16 feet by 12½ feet by 24½ feet deep; two cylinder type vacuum filters and an eight-hearth incinerator.

The plant is located on the west edge of the city and has 64 acres of ground. At the designed capacity rate of 8 mgd it has 2 hours detention time in the primary settlers, 1.9 hours in the aeration tanks and 2.3 hours in the final settlers.

Sludge Recirculated

It is our practice to return settled sludge from the final settlers amounting to approximately 20 to 25 percent of the raw sewage flow, wasting sufficient sludge to maintain the solids between 1,300 to 1,400 ppm in the mixed liquor. The floc in the aeration tanks takes on a dull red color from the ferric sulphate—the principal

chemical used in the Guggenheim Biochemical Process at our plant.

Experiments

We have done considerable experimenting by varying the suspended solids in the mixed liquor and it is our belief that our best final results are obtained with a load of 1,300 to 1,400 ppm in the mixed liquor. Experiments have been conducted varying the suspended solids in the mixed liquor from 500 ppm to 2,000 ppm.

Frequent checks are made to determine the correct ferric sulphate dosage. The dosage ranges between 2 ppm Fe to as high as 6 ppm Fe and the average dosage over the past 17 months is 3.6 ppm Fe.

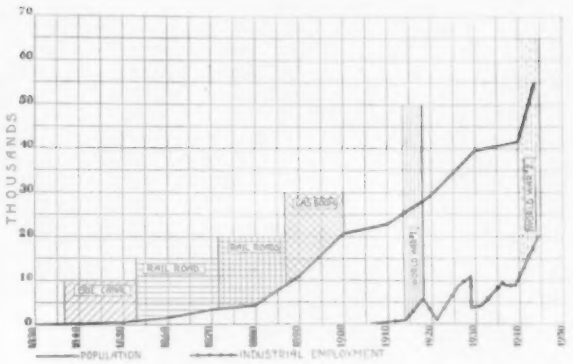
Lime is used in the primary settling tanks only on rare occasions to control the pH of the primary effluent at approximately 7.6.

The sewage at Anderson contains, in addition to the sanitary sewage of the city, the industrial wastes from a greatly diversified line of manufacturing, steel mill pickling liquor, chrone plating wastes, large quantities of pickling liquor from an aluminum forging plant, wastes from a meat packing plant, a canning factory, and from a sodium silicate manufacturing plant.

Rather than study the operating figures in their entirety let us select the month of October 1943, which to us was very interesting because of critically high peak loads. Treating an average of 13.67 mg of sewage reduced our detention time in the primary tanks to approximately 1.2 hours, aeration time to 1.1 hours, and detention time in the final settlers to 1.3 hours. This was one of the months when for 17 days we used an average of 788 pounds of lime per day in the primary treatment tanks to control the pH which was runing over on the acid side because of the canning factory wastes. The Fe dosage amounted to 3.9 ppm. The raw sewage contained 358 ppm suspended solids, the primary effluent 73 ppm suspended solids, final effluent 27 ppm suspended solids. The 5-day BOD tests were as follows: raw sewage 152, primary effluent 87, and final effluent 13.

POPULATION OF ANDERSON, IND.

A graph showing population growth of Anderson, Ind., with known influencing factors indicated.



While we are reviewing this month, let us also follow through with the purification and the costs. The percentage BOD removed was as follows: primary average 75.7 percent; secondary, 64.9 percent; over all 91.4 percent. The suspended solids removed were as follows: primary, 79.6 percent; secondary, 63 percent; over all, 92.5 percent.

Costs

The cost per million gallons treated was $12.47. The cost per 1,000 pounds BOD removed was $10.75. The total monthly chemical cost was $945.30, the electric power bill was $1,815, and the cost per million gallons for chemicals used (lime and ferric sulphate) amounted to approximately $2.23.

1943	Sewage treated mg	Primary settling detention hours	AIR USED: Million cu. ft.	AIR USED: Cu. ft. per gal.	AIR USED: Aeration hours	AIR USED: Final settling detention hours	Lime-primary-treatment lbs. per day	Fe. m	5-DAY BOD: Raw sewage	5-DAY BOD: Primary effluent	5-DAY BOD: Final effluent	5-DAY BOD: % Removal	SUSPENDED SOLIDS, PPM: Raw Sewage	SUSPENDED SOLIDS, PPM: Primary effluent	SUSPENDED SOLIDS, PPM: Final effluent	SUSPENDED SOLIDS, PPM: % Removal	Sludge index
JANUARY	6.04	2.6	3.26	0.54	2.5	3.0		5.1	166	72	15	91	246	80	46	81	45
FEBRUARY	6.58	2.5	3.54	0.55	2.2	2.8		4.4	...	...	...	...	...	...			44
MARCH	7.52	2.2	3.76	0.54	2.0	2.6		3.4	322	66	9	97	215	115	59	73	39
APRIL	6.90	2.3	3.79	0.55	2.0	2.6		3.6	165	75	13	92	249	65	29	89	52
MAY	7.78	2.2	3.42	0.54	2.0	2.5		4.5	158	71	10	94	209	79	32	85	39
JUNE	9.12	1.8	3.90	0.43	1.6	2.0	18 da. 336	3.0	222	86	12	95	220	68	22	90	41
JULY	8.04	2.0	3.58	0.45	1.9	2.3	2 da. 350	4.4	131	53	15	89	230	83	30	87	39
AUGUST	7.72	2.1	3.52	0.48	1.9	2.4	24 da. 908	4.2	111	55	18	84	192	66	22	89	44
SEPTEMBER	8.57	1.9	4.21	0.51	1.8	2.2	25 da. 1310	3.7	188	77	21	88	255	67	19	93	64
OCTOBER	13.67	1.2	3.45	0.25	1.1	1.3	17 da. 788	3.9	152	37	13	91	358	73	27	92	53
NOVEMBER	13.99	1.1	3.65	0.26	1.1	1.3	6 da. 983	3.2	109	41	10	91	227	57	23	90	41
DECEMBER	10.25	1.6	2.91	0.34	1.5	1.8		4.4	133	48	11	92	220	67	19	91	42

TABULATION OF RESULTS FROM TREATMENT OF SEWAGE BY GUGGENHEIM PROCESS AT ANDERSON, IND. PLANT

The popular community center at Hibbing, Minn., a city of 16,385 population, had an attendance of 97,413 in 1943 at its multiple activities.

War Memorials That Further Practical Democracy

Trends of discussions and plans in the United States

WITHIN a year or two we may be building war memorials in many parts of our country. What kinds of memorials are we planning? How are they to be financed and maintained? What is the spirit behind our desire to memorialize the heroism of the men and women who have given so much to preserve freedom for mankind? Can we establish memorials that will at once commemorate their heroism and continue the fight to safeguard freedom?

Other types of war memorials than those considered here will be treated in a later issue.

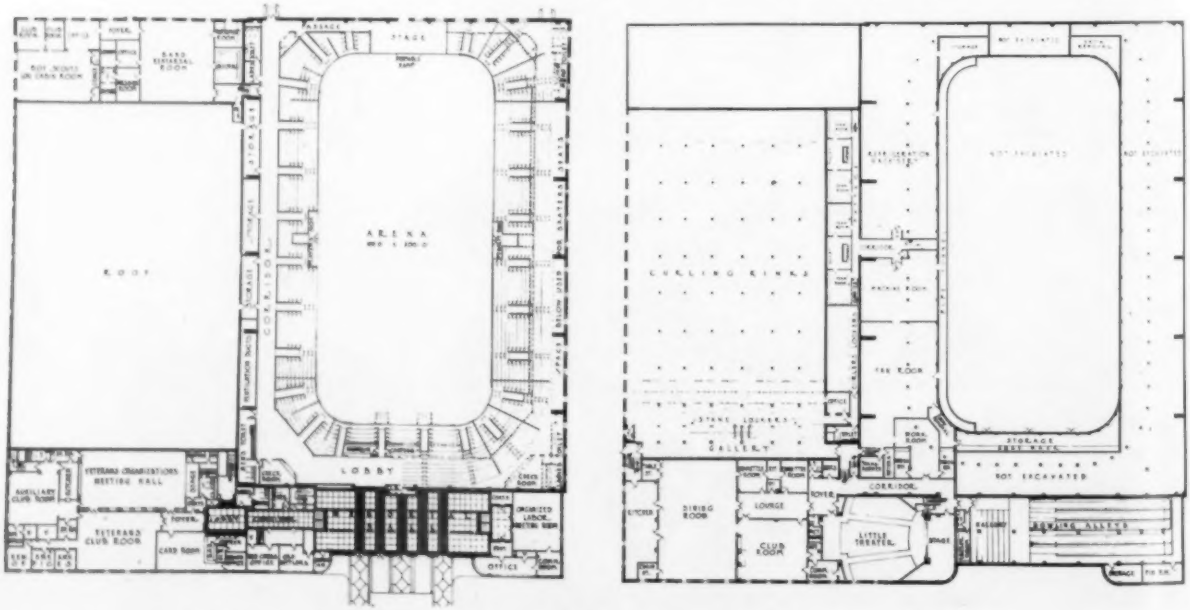
These and other questions are being raised by municipal officials and citizens' groups in many places.

The Rt. Hon. W. S. Morrison, Britain's Minister of Town and Country Planning, recently said:

"We know that after the war we must build and rebuild not only for ourselves but for generations that will come after us. We shall, I think, build too with the sense that we are thus creating worthy memorials to the heroes and heroines of this war."

No one monument could be adequate to commemorate the sacrifices of this war. Our memorials can only be symbols of the spirit that lies behind them—of our dedication to a will for peace and the wellbeing of all men.

If we can hold before us such a purpose, our memorials will serve the common good and will take shape according to our community needs.



Plans showing first floor (left) and ground (right) facilities of Hibbing's community center.

Floor plans of Hamden, Conn., Memorial which will house both municipal offices and a community center.

With this principle established a controversy as to the merits of the utilitarian and the purely commemorative memorial may be avoided, and we may well find our desire for *permanence* in the memorial met by the permanent progress of community life; the requirement of *beauty*, in a more intelligent understanding of the "pursuit of happiness," written into our Constitution as an unalienable right of men; and the spirit of *commemoration* expressed in a greater love for and practice of true democracy. These are aims that cannot be achieved as easily as a bronze placque can be erected . . . but they are close to the last wishes of many falling on the battle field, and of the larger number who have fought nobly and will be returning to us. Our memorials should commemorate the services of them all—the living and those who have fallen.

Percival Goodman in a letter to the *New York Herald Tribune* on May 15, 1944 said:

"I do believe that a deep problem is posed by the question of war memorials, a problem not to be solved by looking at Trafalger Square, the Arc de Triomphe, or Columbus Circle. . . . These are monuments to the dead. . . . We are fighting for our lives, for peace and decency. . . . These are not mock heroic phrases . . . but simple matter-of-fact phrases which will inspire every architect, engineer, city planner, every citizen with a will to create a memorial worthy of those who die that others might live. . . . That others may live! Here is a theme for memorials of a 'year round value.'"

After the Last War

After the last war new types of memorials began to appear. El Paso, Texas, laid out a memorial park and pool utilizing the natural beauty of a ravine and bringing to people in that area a fuller enjoyment of outdoor play; the people of Van Wert, Ohio, transformed an abandoned cemetery into a community park through their own efforts; Springfield, Ill., built a swimming ool which has greatly influenced subsequent recreational developments in that city; Savannah, Ga., constructed Palm Tree Drive as a memorial and Minneapolis, its Victory Memorial Drive. Circleville, Ohio, installed a set of chimes of 11 bells in a tower raised to commemorate the men of Pickaway County; Plainfield, N. J., erected a handsome bronze flagpole base, as did Columbia University, New York; Woodminster, overlooking San Francisco Bay, was constructed as an outdoor theatre seating 3,000 people with a cascade fountain illumined by over 1,300 different combinations of lights; Santa Monica's outdoor theatre was built on the grounds of the high school and is flanked by cypresses and shrubs native to California; Skaneateles, N. Y., created a small park; Perth Amboy, N. J., built a victory bridge, as did Springfield, Mass., Wilmington, Del., Appleton, Wis., Rochester, N. Y., and others; Flushing, N. Y., and Greensboro, N. C., were among several cities that chose memorial stadiums and sport fields.

Auditoriums and Community Houses

But two types of memorials predominated, arising primarily out of

Proposed American Legion Memorial Building at Hamden, Conn. Westcott & Mapes, Architects and Engineers.

PHOTO, COURTESY NATIONAL RECREATION ASSOCIATION

Although not a memorial, the Portola Recreation Center, operated by the San Francisco Recreation Department, illustrates a neighborhood development in the larger cities, well adapted to memorial plans.

the needs at that time and a realization that buildings of great community value were also suitable memorials—auditoriums for larger cities and community centers for towns and smaller cities. Today the trend is even stronger in that direction. Most of our very large cities have their municipal auditoriums or civic centers, but medium size places are now aware of a similar need, as Coleman W. Roberts, General Chairman of the Charlotte Planning Commission, of Charlotte, N. C., an industrial city of 106,000 population, brings out in his excellent survey, "A Pattern for Charlotte."

"One of the most pressing needs of Charlotte today is facilities for community activities, conventions, concerts, operas, conferences, headquarters for various civic organizations. What could be more fitting than to meet this need by building an appropriate war memorial in the form of a Civic Center Building. . . . Not just an auditorium but a fitting living memorial to perpetuate the memory of all men and women from Charlotte and Mecklenberg County who have served in any war . . . one to fill all community needs as we see them today and anticipate them to be within the next twenty-five years."

Over 100 auditoriums have been built during the past 25 years, many of them memorial buildings, and there is now an Association of Auditorium Managers whose Secretary is Manager of the Memphis, Tenn., auditorium. As a result of this trend in building, the civic life of San Francisco, Cleveland, Worcester, Lowell, St. Louis, Rochester in Minnesota, Norfolk, Seattle, has been immeasurably enriched by symphony orchestra concerts, grand opera—among them San Francisco's dollar opera—plays, lectures, community discussions, social gatherings, municipal festivals, conventions. These are potent factors in a democracy and have all been made possible because of the facilities of the auditoriums and the able planning and management of their programs.

Every Individual Important

With the years, however, many communities have become more aware of the *importance of every individual* to his community and of the need for smaller, more intimate and more diversified centers where the social, cultural, and recreational life of the whole community or neighborhood can find expression in individual ways. It has been said that today "there is hardly a community in the United States where in varying stages of activity the idea of having a community house does not exist." This type of memorial fits into our American program for a better nation.

The idea of "living memorials," especially community houses, was advanced before the end of the last war. Goldsboro, N. C., was reported to be the first to build a community house and since then there has probably never been a time when some town has not either been building or planning to build a center where its citizens could work and play together and jointly shape community decisions.

Early ideas of providing club rooms for civic and veterans' organizations and an auditorium for plays, motion pictures, and exhibitions have been expanded to include more scientific planning to meet diverse social needs of a population awakened by the experiences of the war. In its more mature form, the community center is not merely a place where all ages can passively enjoy entertainments and social gatherings, but a place where they can participate in character and cultural building activities—in hobbies, nature clubs, games, singing festivals, handicrafts, sports of many kinds. But above all, where they can discover their own possibilities to work and play. Libraries, teen-age clubs, snack bars, gamerooms, craft shops—all seem essential facilities to meet the needs of community life today. Everybody belongs to this community club and has a place there.

Not every community, wishing such a center, may see how it can be built and equipped, much less maintained. But with a will, various solutions may be devised, and the pattern can be cut to suit the community. The National Recreation Association has recently published a pamphlet, "Oglebay Park," pointing out the inestimable benefits Wheeling, W. Va., has enjoyed as a result of the generosity of a public spirited citizen in leaving his estate, Waddington Farm to the city for a community center. Its development has been carefully thought out in relation to the community and neighborhood and is a pattern that might be adopted by many other communities whose public spirited citizens may wish to deed or will estates to their own cities or towns. Selma, Ala., has recently been presented with a fine old house to be made into a community center in honor of the owner's son who was lost in the Southwest Pacific. A valuable center has been developed at Salem, Va., where an 18-room house on a 16-acre estate provides a meeting place for its less than 6,000 inhabitants.

Other cities have built their community centers from the ground up and have financed them by bond issues, private donations, sales of stock, dollar memberships, or a combination of these means.

USO Centers

Some 460 United Service Organization centers are now operating in the United States, many of which will become available at small cost to municipalities after the war. Mineral Wells, Texas, is negotiating for the discontinued Negro USO building in the hope of converting it into a permanent Negro community center. Meantime a full program enjoyed by visiting soldiers and civilian alike is carried on.

The ingenuity shown by many organizers of the USO centers afford valuable suggestions for post-war efforts of communities. In developing USO centers, discussed by Mark A. McCloskey in the *Survey Mid-monthly* for July 1944, the Government has utilized many old buildings, armories, abandoned barns, hothouses, houseboats, old restaurants, business offices, as well as constructing new buildings. Mr. McCloskey also points out the opportunities of utilizing the school where no funds are available for a separate building or where no USO center exists to be transformed for community use. "There are, for example," he says, "two schools in Wayne, Mich., scientifically patterned for community use. They are low, handsome buildings whose dual purpose is apparent."

There are various ways of creating interest in a community center. A most essential point is to enlist the cooperation of other organizations. Hibbing, Minn., after the last war built a community house, and when it burned, rebuilt it with the cooperation of 89 civic and patriotic organizations in the town. Today it serves in diversified ways all its population. Many memorials, particularly large auditoriums and highways, have been financed in part by private contributions and in part by bond issues. Seattle offered 2,500,000 shares of stock at $1 a share to be sold within a year for the financing of its Auditorium and Court of Honor. Most communities will have to measure their desire for a memorial building against other material needs of the community. But the financing of a center will be facilitated or hindered by the attitude of the community towards it. If a town is alive to its responsibility and ability to develop an alert, satisfied, loyal, and expressive population, the community center may seem a *must* among post-war projects, because such a center, well administered, is the best facility yet devised for promoting unity and individual growth among all the people.

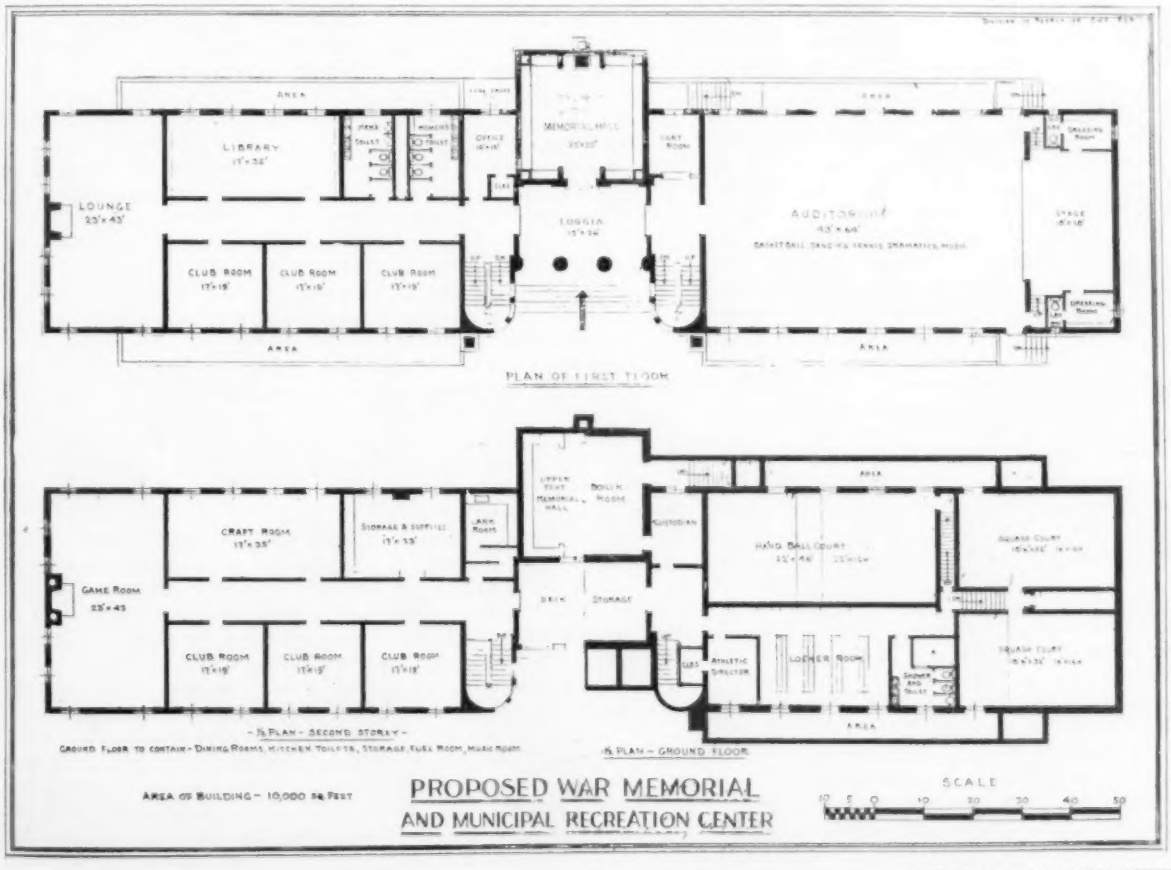
Funds for Maintenance

In a recent report on War Memorials, the Office of Civilian Defense made a point of great importance in planning a community center:

"One gap in most current planning of useful memorials appears to be the failure to plan for a permanent fund for the upkeep and personnel. Communities frequently fail to realize that by erecting a community center or recreation hall, they commit themselves to a program involving considerable additional outlay of funds. The starting point in planning such a memorial should be the planning of the program itself and deciding how it could be financed. The next step would be to plan the building so that it may best meet the needs of the program."

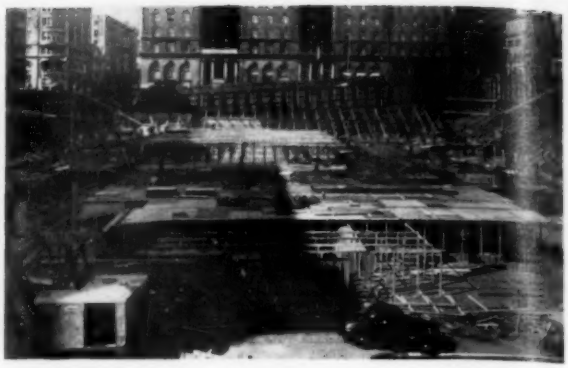
And the National Recreation Associ-

(Concluded on page 101)



COURTESY FEDERAL WORKS AGENCY

Excavating Union Square for the underground garage



The four-floor garage under construction

San Francisco's "Landing Strip for Motorists"

By FRANK J. TAYLOR

IN four years, San Francisco's historic Union Square Park has gone through some amazing transformations. On March 30, 1941, it was a drowsy plaza, surrounded by hotels, stores, theaters, office buildings, and jams of traffic. The next day, snorting steam shovels were scooping the sandy soil, dumping it into an endless day-and-night convoy of dump trucks. Soon the entire square was a yawning pit, as deep as a four-story building, with heavily buttressed temporary walls holding back the shifty sands beneath the bordering streets. Then new crews of workmen appeared; they built forms into which another round-the-clock convoy of trucks bearing revolving mixers poured yard after yard of concrete. The Square became an odd looking, gently sloping dome, covering ten acres of floors and ramps. Then, as if by miracle, the plaza reappeared, somewhat formalized with lawns, flower gardens, trees, walks, seats—even the historic bronze monument commemorating Admiral Dewey's victory at Manila and the pigeons to whom passers-by fed crumbs.

An Underground Parking Garage

Outwardly, except for the entrances and exits on the four busy streets bounding Union Square, there was nothing to suggest the transformation in crowded downtown San Francisco. But beneath the park had appeared an astonishing "landing strip for motorists," a huge underground parking garage with space for 1,700 cars. In the year and a half since the strip, known as Union Square Garage, became a reality, instead of the fifteen-year dream of civic and business leaders, it has gone far to solve San Francisco's acute downtown congestion problem. The huge four-story underground parking center is more than a garage; it is terminal for motorists from the city's suburbs and outlying communities. With its spacious lobbies, seats, gallery for meeting people, it is already a San Francisco institution and showplace, in a class with Chinatown, Fisherman's Wharf, the great transbay bridges. Every day, scores of out-of-town visitors flock to the gallery to ogle at the breath-taking scene, as a thousand cars an hour pour in and out of the world's largest landing strip for motorists.

"Every city over 200,000 will be wanting one of these motorist landing strips, when the war's end makes materials and labor available," declared exuberant Andrew Pansini, who operates the garage for the Union Square Garage Corporation. Pansini has devoted most of his life to solving the parking problems of motorists. To him, a motorist in search of a parking spot in the downtown shopping section of any American city is a figure as pathetic as an aviator vainly hunting a landing field. Now, in Union Square, Pansini offers motorists what he considers the last word in downtown landing strips.

Fifteen Years of History

Union Square Garage is the culmination of a fifteen-year hope of the city's civic and business leaders. As increased numbers of motorists crowded into the area, they could see the downtown business district gradually being stifled by the traffic jams. To keep the stores from migrating to outlying areas, as had occurred in several other fast growing cities, they decided on drastic action. Late in 1939, a group headed by Carlton H. Wall organized the Union Square Garage Corporation, a non-profit company. Wall and eight other directors, business and professional men with offices in the neighborhood, served without pay.

First move of the corporation was a test suit before the California Supreme Court to determine whether or not San Francisco Park Commission could legally lease the sub-surface rights of a park given to the people in 1854 for the public's perpetual use by the city's first mayor, John White Geary. The court ruled that the city might lease the sub-surface rights provided the park were restored on top of the proposed garage building—a decision that is regarded as important legal precedent for other cities faced with parking crises similar to San Francisco's.

Four-Story Building for 1,700 Cars

Next the corporation employed Miller McClintock, traffic authority (now president of the Mutual Broadcasting System) to make a survey to determine how many cars the proposed garage should house. With the information from this survey in hand, Timothy L. Pflueger, architect chosen to design the building, went to work. His ingenious plans called for four floors, each one a block square, connected by slightly sloping ramps, resembling the cloverleaf intersections at high speed super-highways. That yielded parking space for 1,700 cars,

Union Square with garage almost completed

A section of the main floor of the completed garage

four generous main floor landing strips where motorists could zoom in and check their cars or claim them later at a breath-taking clip. The plans provided for the servicing, car washing areas, for the offices, rest rooms, parcel checking facilities, and for a spacious lobby, resembling that of a large hotel or a modern railroad terminal, with seats and potted palms about. Estimated cost was $1,555,000, including $100,000 for completely restoring the park.

Financing

The cost determined, the directors set out to find the money without asking the city for a cent. The simple financial structure they worked out produced funds easily. In the area within three blocks of Union Square they sold 6,800 shares of 6 percent cumulative preferred stock, par value $100 per share, to merchants, hotel and theater operators, and professional people whose patrons might benefit by use of the garage and to suppliers, such as the oil company whose products are merchandised in the new garage. With $680,000 thus in hand, the Reconstruction Finance Corporation agreed to let them have $850,000 more, secured by a first mortgage on the building. A balance of the preferred stock was reserved for the lessee, Union Square Garage, Inc., of which Andrew Pansini is President, thus bringing the total to the necessary $1,555,000.

Only 100 shares of common stock with no par value were issued; these were given to the city of San Francisco, which received also a token rental of $5,000 a year from the Union Square Garage Corporation plus $15,000 annually in taxes. Thus when the RFC loan is paid off at the end of *twenty-one years* and the preferred stock has been called in and retired at the end of approximately *twenty-five years*, ownership of the garage structure reverts automatically to the city of San Francisco—and at no cost.

Construction of the garage, begun March 31, 1941, by MacDonald and Kahn, San Francisco general contracting firm and a member of the famous Six Companies which built Boulder Dam and other great western dams and bridges, proved a feat in itself. Union Square and the surrounding tall business blocks rise above deep sands. To keep the streets from caving in, the builders sank heavy buttressed temporary retaining walls around the 412 x 275, 50 feet deep hole they scooped out of the plaza. As the floors and ramps took shape, the structure, one vast steel and concrete unit, took up the burden of holding back the shifty sands.

Outbreak of the war, bringing shortages of steel and manpower, overtook the builders. For a time it looked as though San Franciscans had traded their historic downtown park for an unsightly hole, for the duration at least. Then special priorities made materials available again, and the builders rushed the job to completion. In the construction of the garage, the lion's share—over half of the $1,555,000 cost—went to labor for wages of San Francisco workers. A good share of the balance likewise reached payrolls indirectly, in plants fabricating the steel, motors, fans, pumps, cement and other essentials used in the building. Approximately a million man-hours built the garage proper.

Choosing a Manager

Directors of the financing and building corporation, concluding that they knew nothing about running garages, canvassed the West for an operator. Out of all the bids received, Andrew Pansini seemed best qualified to run the garage as a civic enterprise because of his experience. Under the agreement reached, he pays the monthly installment of the RFC loan, the rental to the city, the taxes and insurance, and builds up the sinking fund which will eventually retire the preferred stock, a yearly total of approximately $180,000.

Pansini pays all the other bills, too, the main item being wages of his 105 employees, who work in three shifts around the clock. Eight out of ten of these are women, even the car washers. Last year the wages and salaries totalled $179,000. Another sizeable item is electric power for the floodlights, which light the lower parking floors as well as the lobby, and for the motors of the ventilation system which changes the air throughout the huge garage every ten minutes.

Light Everywhere

"Do you know why I like this place?" asked Pansini, his eyes dancing with enthusiasm. "It is as light as daylight everywhere. Customers, especially women, hate to drive down a ramp into a dark hole. Here it is different. They can see how clean everything is. There isn't a spot of grease anywhere. It's as clean as your kitchen." The top floor—the first below the park surface—is actually a "landing strip." The architects planned it as a continuation of the street system—where garage employees could receive cars and issue claim checks. Very few cars are parked there. It is devoted almost entirely to the business of receiving and delivering cars. But with the present labor shortages the wide, brilliantly lighted ramps make it possible for customers to drive to the floor below the top, where a vastly larger number of cars can be stacked up in rush periods to await moving to their assigned stalls when the "peak" is over.

Andrew Pansini

Out of his twenty-five years as garage and parking lot operator, Andrew Pansini has evolved some ideas about

solving big city parking problems with self-amortizing public garages. Born in Italy, he came to the United States as an energetic youth, worked in a grocery, then a dairy, earned a stake, built up his own dairy in New Jersey, sold it and migrated to Los Angeles with his family, his wife, two sons and a daughter, during World War I. Mrs. Pansini was his bookkeeper in the dairy business. When he opened the first downtown parking lot in Los Angeles in 1917, she watched the financial end. As the parking lot prospered, he added others, finally building up a chain of eighty parking lots and six garages. Pansini's particular pride is that, as his system grew, he was able to wreck more than four-score antiquated and unsightly buildings to make more parking space for motorists. Today he still maintains 25 parking lots and 6 garages, in addition to Union Square.

In 1937-38, Pansini made a nine thousand mile tour of Europe, studying how crowded continental cities had solved their metropolitan parking problems. When he saw Mussolini's palatial 2,000-car garage, Andrew Pansini said, "Mussolini is wrong. He should have built down, not up, so that he could get his cars in and out faster." He was back in Los Angeles, dreaming of some day turning Pershing Square in the heart of the city into an underground garage, when the directors of the Union Square project called him to San Francisco. Almost overnight, Pansini trained 100 helpers to move cars in and out at the rate of 1,000 an hour. In 1943, the staff, mostly girls, handled 766,000 cars. Last December during the holiday rush, the garage handled 74,000 cars. A paternal employer, Pansini maintains a coffee shop for his help, runs his own laundry system in the garage to provide freshly done smocks for his workers, makes everyone change immediately if the smock is soiled. When a spot of oil drops on the floor, he will grab a mop, if someone else doesn't get to it first. Beginning girls who park the cars average $6.60 per day, from which they advance to $7.00. Lubricators and car washers, most of them likewise women, average $7.25 a day.

Since Andrew Pansini is the man who must make the spectacular garage pay for itself, his ideas about how other cities can make similar garages pay out are pertinent. He says motorists will walk five minutes to use a landing strip but no more. Therefore, the patronage from the four or five block surrounding radius must be sufficient to support a central garage at rates comparable to those at the Union Square Garage: 25c for one hour, 75c overnight, $12.50 by the month. Within the radius of San Francisco's Union Square are eleven office buildings occupied by 1,500 doctors, dentists, and other professional people, 88 restaurants, 17 first-rate retail stores, 7 theaters seating 9,000 persons, two-score hotels with 10,000 rooms. Pansini, who likes to know where his customers come from, leaves nothing to guesswork; a poll of his patrons shows that 32 percent formerly parked their cars by the curb, 40 percent used other garages and parking lots, 22 percent didn't live in or near San Francisco before the war. Five percent never drove to the city before the garage became one of San Francisco's great places to meet people.

A Union Square Garage Possible for All Cities of 200,000 or More

"Almost any city of 200,000 or more can support a Union Square garage," says Pansini. "It may have to be smaller in some cities, but others like New York, Philadelphia, St. Louis or Chicago could support several full size landing strips. As a rule, cities need only one. No other area in San Francisco has a concentrated shopping area like Union Square. The financial district could fill a garage by day, but it would have no income at night.

"You have to operate this business on a twenty-four hour basis," explained Pansini. Los Angeles, a larger city whose parking problems he has studied carefully, could use only one garage such as Union Square. The rest of the city is too decentralized. So many city planning commissions and customers have fired inquiries at him that Pansini is putting out a booklet to explain how the landing strip underground garage idea has worked out in practice in San Francisco. After the war, he predicts, there will be a boom in building downtown motorist landing strips. "It will pay the cities which do it," says Pansini. "Garages like this are landing fields for buyers—if cities don't have them many shoppers will go elsewhere.

New Municipal Market for Dallas

CONTRACT was recently let for $47,965 for the first unit of the proposed $1,500,000 Dallas Public Market.

This unit consists of a steel and concrete fireproof shed with elevated loading and unloading platforms. A 5-lane, 45-foot driveway, divides the two rows of stalls. Two lanes are for parking, the others 1-way drives, to speed service. Each row will have 30 stalls, each 10 feet wide. Ample sprinkling facilities, disposal pits and huge spotlights will be available. Rents will be reasonable.

The city now owns two blocks and the plans call for 6 or 8 more, and erection of immense warehouses, heavy refrigeration service, well-laid out trackage and shipping facilities.

Radford, Virginia Builds a Two-Mgd Filtration Plant

By W. T. WELLS
City Engineer

To meet an increased wartime supply load

IT is no longer significant to say that a city's population jumped by nearly 90 percent within a period of a few months and then stayed there. Things like this have happened so often during these wartime years that they have become almost commonplace. However, from a purely impersonal standpoint it should be of interest to see what was done to meet this emergency when our water demand rose from 500,000 gallons per day to over 1,000,000, well over the capacity of our plant.

I say "what was done" for good and sufficient reasons, since we do not wish to infer that we did it all ourselves. When the Government plopped certain important war industries in our laps and said to us in effect, "Here they are," we did the best we could as will later be disclosed, but when it became apparent that our financial assets just simply would not stand the strain, the Government came to our aid with a FWA grant that made it possible to build this workmanlike improvement.

Up until the fall of 1940 our water-treating facilities were adequate. Drawing our supply from New River, we treated it by running it through a coagulation basin with capacity of 600,000 gallons per day, based on an 8-hour detention period. All told, our plant, including pumps and filters could produce treated water at the top rate of 800,000 gallons per day. This, of course, was adequate considering that the average consumption was around 60 percent of this figure. We had two standpipes to give us a reserve in case of peak demands, one holding 500,000 gallons and the second, 250,000.

When the demand for water began spiralling upward, we did what every engineer would do—we tried to make the present plant do the job by strengthening the distribution system. We extended one key 10-inch main and installed another standpipe, this one with 500,000-gallon capacity, thereby making it easier for water to reach certain parts of the system and materially boosting our reserve supply of water.

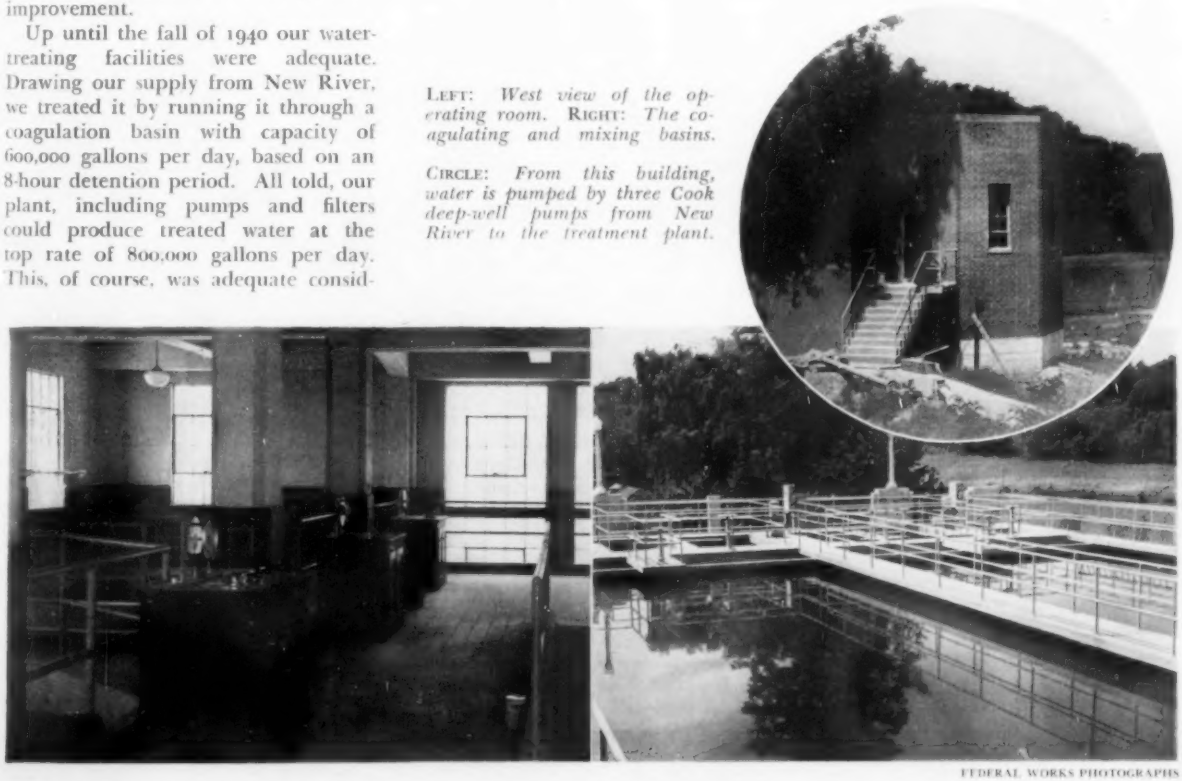
Efforts Ineffective

However, this didn't do the trick. We soon found out that our problem was not that of "transportation" but of "supply." This seems plainly apparent now that we look back on it, however, during those confusing days of 1941-42 when we didn't know what the ultimate capacity would be, it was hard to come to a sound conclusion. At any rate, we wound up by realizing that we needed new filtration facilities.

As a result, we retained Wiley and Wilson, consulting engineers, Lynchburg, Va., to analyze the situation and draw up plans and specifications. We also instructed them to draw up an FWA application which fortunately enough came through quickly.

The revisions fell into three general categories. First, there was the work on the pump house and river intakes. Next, came the additions to the mixing, coagulation, and settling basins. And finally, there was work on the filtration building including filtration beds, chemical feeders, and related appurtenances.

The river intake was built at the river's edge and made of concrete. It is protected with the usual screens and trash racks with the base of the intake



LEFT: *West view of the operating room.* RIGHT: *The coagulating and mixing basins.*

CIRCLE: *From this building, water is pumped by three Cook deep-well pumps from New River to the treatment plant.*

FEDERAL WORKS PHOTOGRAPHS

4½ feet below stream bed. A 50-foot concrete diversion-wall extending upstream was built to increase the velocity of the water entering the intake and help keep it clean.

The revisions to the pump house included lowering the basement floor to an elevation equal to the intake sump and raising the operating floor to a level higher than any recorded flood stage, or some 6 feet above its previous elevation. Three Cook deep-well pumps were installed to handle this raw water—two of 750 gpm. and one of 1,000. We selected deep-well pumps in order to get the pumping equipment above any previous high water level. We experienced in 1940, during flood stage in New River, a rise in water level of 32 feet 4 inches which flooded our raw water pumps necessitating the use of fire fighting equipment to maintain our water supply.

Helpful Design

A bit of design went into the line connecting the intake and pump house that has proved extremely helpful as far as operation is concerned. This covered the installation of a shear gate in the line at the pump house end making it very easy to clean the line if it becomes clogged with sediment or debris. By closing the shear gate, the operator can build up a reverse head of about 15 feet, then releasing the gate quickly he can scour the line and force the sediment back into the river.

The shear gate is operated from the main floor of the pump house by an extension shaft and valve stand, permitting the operation of the valve at all water levels. By having the valve located in the pump house the operator is able to determine the head desired and operate the shear gate in the same room.

Revisions in piping were installed in the pump house also providing for chemical feed of alum and chlorine before reaching the mixing chambers.

There are three mixing chambers. Each is equipped with a vertical agitator powered with four-speed vertical gear head motors. However, there are only two coagulation basins, each with a capacity of one mgd based on a 6-hour retention period. Both the mixing and coagulation basins are of concrete and above ground. Two settling basins were constructed following these coagulation basins, interconnecting them with a flume to allow the use of either or both the coagulating basins without disrupting the operation of the filters.

Chief among the changes to the filter house were the filters themselves. Four

PHOTO BY FEDERAL WORKS AGENCY

The Radford, Va., plant with the coagulating basins at the left

of these were provided, each of ¾-mgd capacity thereby making it possible to boost the capacity of the plant to 3 mgd by simply adding another coagulation basin. The filters have Wheeler bottoms and are fully equipped with hydraulic valves. A 60-foot diameter clearwell baffled at both the inlet and outlet furnishes a final period of settling before the water proceeds to the pump well.

The filter building itself has three floors plus a basement. In the basement are 16 Mueller hand-operated gate valves varying in size from 5 to 20 inches. Also located there are 16 Iowa hydraulic valves ranging from 4 to 12 inches and four 14-inch filter waste valves with rectangular inlet and having an area of 125 percent of the 14-inch pipe to insure removal of the waste water rapidly.

Four of the 12-inch hydraulic valves are located between the coagulating basins and the filters regulating the flow of water into the filters. Four of the hydraulic valves are located on the wash lines between the wash-water pump and filters. Four 6-inch hydraulic valves are located on the lines between the filters and the influent line to the clear-water basin. Four 4-inch hydraulic valves are on drain lines between the filters and the 16-inch waste main for filter rewash. All of these valves are controlled from the operating tables.

On the first floor, all the high-pressure pumps are located. These include one 500-gpm Weinman which has been in service since 1938 and was installed in the new building, and two 700-gpm De Laval pumps and a wash-water pump of 3,400 gpm. Gauges, switch controls and various hydraulic valves are also located here. Freight also is received on this floor for transfer to the third floor for storage.

The filters, operating tables, office, and laboratory are located on the second floor. Entrances from this floor also are supplied to the walkways for the coagulating and mixing basins.

There are four complete filter operating tables each designed for accommodating the controlling and indicating devices for the five hydraulic filter valves. The tables are constructed of satin-finished ebony asbestos, 2 feet 4 inches wide, 4 feet 2 inches long and 3 feet high.

Five brass, chromium plated levers with hard rubber grips and chromium plated function plates are located directly over four-way valves with steel extension stem and Universal couplings.

The function plates have raised letters denoting the function of each valve and a dial showing accurately the various degrees of valve opening. There are also two dials on each table registering the rate of flow and loss of head. These are connected to a rate of flow controller which has an adjustable counterweight for rate changes.

Chemical Feeders

On the third floor, chemical feed equipment is supplied along with storage. We supply feeders for alum, lime and carbon as well as a metaphosphate feeder for corrosion control.

There are three Wallace and Tiernan dry chemical feeders on this floor, one for feeding alum sulphate designed to feed from 1 pound to 100 pounds per hour; one machine for activated carbon, also suitable for feeding lime or soda ash designed to feed from 1 pound to 28 pounds per hour; and another machine is designed for feeding hydrated lime with a feed range of from 1 pound to 45 pounds per hour.

The feeders are electric-motor driven, have a dry chemical hopper capacity of 3¼ cubic feet, the feeding accomplished by oscillation of the feed spout which is rigidly attached to the hopper. The chemicals are discharged into a solution mixing chamber of chemical stoneware. These feeders are located on the third floor and feed by gravity to the mains in the basement.

The plant has two Wallace and Tiernan chlorinators one of which was in service about 20 years in the old

filter system. This machine was factory reconditioned and put into service; the other is a new machine. They are of the manually controlled solution feed, visible vacuum type, metered under a partial vacuum. They have a capacity of from 5 pounds to 100 pounds of chlorine per 24 hours, using one tube having a capacity 5 to 25 pounds and the other 20 to 100 pounds. Two-way valves were installed to feed chlorine to the raw and also the filtered water. These feeders are also on the third floor, feeding chlorine in solution into the mains in the basement.

The plant went into full operation in June of 1943 and its operation has been a source of great satisfaction to us. It is easy to see how badly we needed this addition from the fact that one of our old raw water pumps was worn beyond repair while another was in such bad condition that it was operating at about 60 percent efficiency.

When originally built, about 40 years ago, the plant furnished water, untreated, to a distribution system of cast-iron mains varying in size from 4 to 12 inches in diameter. While the water itself was scarcely anything that would bring words of praise from modern sanitary engineers, one cannot say the same about the distribution system. This was exceptionally well designed, most of which is still in use today and in first-rate condition except for a certain amount of deterioration because of corrosion.

The supervising engineer for the Federal Works Administration on this project was Dewey Merritt.

Letters to the Editor

Youth Protection—A Nationwide Problem

A FEW weeks ago the editor of THE AMERICAN CITY brought to the attention of New York's Mayor a mimeographed leaflet issued by the Director of Social Welfare of the City of San Diego, Calif., Alvin G. Rowe, entitled "Youth Protection." Mayor La Guardia's reply, under date of September 8, presents a problem which is assuming serious proportions in many industrial cities throughout the nation.

"I have found the San Diego leaflet of great interest because it is apparent that the problems of violations of employment of minors in cities throughout the United States are quite similar.

"At the present time, New York City is engaged in a campaign to send its youth back to the classroom. Almost 900,000 children should be enrolling now for the new school year. About 240,000 of them belong in our senior high schools, but during the year ending August 31, 1944, 80,000 boys and girls secured vacation work permits, and another 90,000 have taken out their permanent working certificates. All of these children are between the ages of 14 and 18. There is grave danger that many of those over 16, working on vacation work permits, may prefer "big pay' 'to schooling. Thousands of regularly employed boys and girls, under the age of 17, are evading the minimum requirements of "four-hours' school attendance per week' and thereby unintentionally flouting authority.

"Some of these boys and girls are earning abnormal salaries, ranging from $20 to $50 per week. Much of their work is routine and unskilled. This wartime condition gives the youngsters, and in some instances their parents, the false notion of the child's ability and earning capacity. These children will soon find themselves without a job and without an education. These boys and girls have neither the background nor experience to realize that when the war ends, normal salaries and demands for better trained workers will prevail.

"I am working in close cooperation with the Superintendent of schools, radio stations, commentators and the press, in order to try to arouse parents to the full realization that with the return of peace, a high school diploma will be a "must" in many industries. "Easy jobs" and "easy money" will pass with the passing of the war. Unskilled youth will suffer serious emotional difficulties and profound unhappiness unless wise guidance is given to them now. That guidance is now towards one end—to return our children to their school desks.

"I am also working in close cooperation with our Labor Department in order to prevent and prosecute violations of our child labor law. Commissioner Edward Corsi is doing a fine job in this field of activity.

"My particular emphasis continues to be on the idea that an educated American youth is the surest way of maintaining the high ideals of citizenship in our democracy."

Progress in San Diego

In a subsequent letter, dated September 19, Director Rowe writes:

"San Diego is a community which has experienced and expects to continue to have acute war manpower shortages even after the defeat of Germany. Nevertheless, school attendance officers report a satisfactory return to their studies of youth employed during the vacation period. The radio and moving picture appeals to young people have contributed to this result. In addition, the numbers of servicemen being discharged and returning to industry are helping accomplish this purpose.

"According to Graham Sullivan, Director of Vocational Education for the City Schools, 60 percent of the 7,000 school students who were employed during their vacation have returned to school on a full-time basis. Some will continue to work part-time after school. Approximately 1,000 students of the remaining 40 percent are enrolled in continuation school for 4 hours per week. The other 2,000 students are enrolled in the high schools in a work-experience program, spending one-half time in school and one-half time at work. To be able thus to contribute to the war effort is believed to be a most satisfactory preventive of juvenile delinquency.

"The other phase of the protective work in San Diego is strict enforcement of the labor laws in reference to juveniles. Under the energetic leadership of Stanley M. Gue, the Deputy State Labor Commissioner for this area, vigorous prosecution and convictions have been made of proprietors of bowling alleys grocery stores, packing companies, cafes, bakeries, theaters and other establishments in which violations have been found."

Who Has the Answer?

TO the Editor of THE AMERICAN CITY:

Your recent articles and items on population density regulations and subdivision design and control have been very timely. Our cities will be shortsighted indeed if they fail to guide the post-war building boom more adequately than they did after the previous world war.

Much emphasis is being given to the need for undoing the congestion of the large cities. But much more attention than heretofore is needed for the correlary problem—that of preventing unwise scattering of population over thousands of countrysides. In the absence of effective subdivision control, urbanites dispersed all over the landscape will not nest up in communities large enough to make practical at bearable cost the public services they need. There is a unit size of community for which certain services all become practical: the school, the neighborhood stores, church, a little police and fire protection, and a real highway to the main community. Architects and engineers can easily build structures—that is a cinch; but getting the legal and social adjustments to make possible these structures and to determine their type and location—that is the trouble. Political science thinking is a bust about the problem of rapid growth of urban population in rural communities. If the officials or civic organizations of any city or county have taken effective steps to solve this problem, I should be glad to hear about it.

EARL S. WEBER
General Manager
Chamber of Commerce
Kalamazoo, Mich.

FIRST BOARD MEETING, NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING, INC.

SEATED LEFT TO RIGHT *at this meeting, held in Milwaukee September 17-20, 1944, are the following members of the Board:* DAVID H. MARBURY, *City Purchasing Agent, Birmingham, Ala.;* JOSEPH W. NICHOLSON, *Vice-President, City Purchasing Agent, for, Department.;* COL. HERBERT D. FEARMAN, *City Purchasing Agent, Hamilton, Ontario, Can.;* HAROLD F. BURNWORTH, *Treasurer, Director, Department of Supplies, Pittsburgh, Pa.;* ALVIN J. HOLM, *President, City Purchasing Agent, Los Angeles, Calif.;* ALBERT PLEYDELL, *Vice-President, Commissioner of Purchase of the City of New York;* CHARLES F. MCCAULEY, *Director of Purchases, Board of Auditors of Wayne County, Detroit, Mich.; and* ALBERT H. HALL, *Executive Director, Washington, D. C.*

LEFT TO RIGHT STANDING (not Board members) are: CHARLES W. BABCOCK, *First Assistant City Attorney of Milwaukee, and* WILLIS S. MACLEOD, *Special Assistant to the Vice-Chairman, Office of Civilian Requirements, War Production Board.*

OFFICERS AND DIRECTORS *who were not in attendance at the Milwaukee meeting are:* L. G. BAKER, *Chief Purchasing Agent, University of California, Berkeley, Calif.;* H. D. VAN EATON, *Supervisor of Purchasing, State of Washington, Olympia, Wash.; and* W. HOWARD WILLIAMS, *Purchasing Agent, State of Alabama, Montgomery, Ala.*

Purchasing Agents Organize National Institute

To Promote Efficiency in Public Spending

MUNICIPAL, county, and state purchasing agents have united in creating a strong national organization for promoting professional efficiency in the expenditure of the hundreds of millions of dollars appropriated annually for supplies, materials and equipment by local and other governmental agencies throughout the United States. The new organization, incorporated as the National Institute of Governmental Purchasing, held the first regular meeting of its Board of Directors in Milwaukee on September 17-20. As set forth following that meeting, the objects of the Institute are to improve the organization and administration of governmental buying through:

Purposes and Methods

1. A regular and systematic interchange of information and experience among governmental buying agencies.
2. Consultation with legislative bodies, departments of government and others on legislation and problems affecting governmental purchasing.
3. Stimulation of and advisory assistance in the preparation of in-service training materials and programs for governmental buying agencies.
4. Development and promotion of simplified standards and specifications for governmental buying.
5. Developing and furnishing information regarding uniform laws and procedures for governmental buying and for the disposition of surplus or obsolete supplies, materials and equipment.
6. Promotion of public understanding and support of professional governmental buying.
7. Continuous research in the organization and administration of centralized governmental buying agencies.
8. Issuance of certificates and awards for merit and proficiency in governmental buying.
9. Other activities having a bearing on the professionalization of governmental buying.

Membership Eligibility

The governmental purchasing agency is the basis of membership and each is represented in the Institute by its head or his designated representative. Eligible for Institute membership are Federal procurement agencies and the buying agencies of states, counties, cities, villages, towns, boroughs, provinces, publicly-owned utilities, public schools and colleges, prisons, governmental hospitals and other institutions, other tax-supported buying organizations, and public authorities and similar ad hoc agencies.

The schedule of assessments for the support of Institute activities is based on the population of the governmental jurisdictions served by member governmental purchasing agencies.

Safeguards

To safeguard its professional status, the Institute is limited by its articles of organization in certain relationships with commercial groups. The Institute may not accept advertising of any kind in its publications or programs. Funds from advertising or other commercial sources may not be received by the Institute. Commercially-provided entertainment is prohibited at official meetings. The Institute may, however, permit commercial exhibits at official meetings conducted or sponsored by it under regulations of its Board of Directors.

The officers and directors of the Institute are listed below the accompanying photograph of the Milwaukee meeting. Albert H. Hall has been appointed Executive Director, with headquarters at 730 Jackson Place, N. W., Washington 6, D. C.

A Modern Sewage Treatment Plant in a Historic Locale

By WALTER F. CAPWELL
Superintendent of the Sewage Treatment and Incineration Plant
New London, Conn.

NEW LONDON, CONN., *with its wartime increase in population, has shown great skill in meeting the resulting problems. This town, originally a whaling port, is 298 years old. Purported to have one of the finest harbors in the world, it has more than doubled its population since the United States entered the war. Known all over the world is the record submarine output of the Electric Boat Co., located just across the Thames river (for this* new *London also has its Thames). The U. S. Submarine Naval Training base is located up the river, the U. S. Coast Guard Academy, a Coast Guard "boot camp" for training Coast Guardsmen and Spars, and a Maritime service training station are all located here. This is the way they solved their garbage and sewage disposal problems.*

DURING every war, New London has had a vital job to perform in the defense of our country, and this war is no exception. The Navy, Coast Guard, and Merchant Marine have all substantial training stations here; along with these the all important job of building submarines goes forward. As a result every form of public service must function at peak efficiency in order to provide the minimum requirements of a populace which has jumped in number from 30,000 to 65,000 in an incredibly short time.

As far as garbage and sewage disposal are concerned, one can say that New London was prepared for the war. Its treatment plant, built in 1940, was constructed to serve a sewage flow of 8 mgd and a population of around 60,000 despite its connected load of only one-third the total population. The plant was one of the first to combine the treatment of sewage and incineration of garbage in one plant. It has the added advantage of separate sanitary and storm sewers, which reduce the amount of grit to be handled.

In order that the sewage to be treated reach the plant, each of the three sections now connected to it has a centrally located pumping station equipped with 3 Gardner-Denver pumps where the sewage entering a wet well is pumped directly from the station to the plant. The sewage entering the plant is likewise handled by 3 pumps, making 12 in all.

Treatment

Entering the plant proper, the sewage flows into a Dorr Detritor chamber and the rate of flow is reduced to about 1 foot per second allowing the sewage to drop its grit. This deposit is automatically collected, cleaned, and removed. From the Detritor chamber the sewage passes through two Comminutors which shred all material to ¼-inch size. From here it passes to the dosing chamber or wet well where it is chlorinated by two Wallace & Tiernan chlorinators during the swimming season, usually between May 15 and September 15. After the addition of chlorine the sewage flows through a center feed into the two circulator Dorr Clarifiers which have a 70-foot diameter, 9½-foot depth, and a 500,000-gallon capacity. The motor-driven raking arms continuously collect the sludge to a central discharge hopper and from there it is removed by three Carter sludge pumps to the primary digestion tank. The effluent from these settling basins overflows and goes through an outfall into the Thames river. A skimmer removes all scum and grease.

Sludge from the clarifier is digested in a Dorr multi-digestion system consisting of one primary and one secondary digestion tank. The secondary tank equipped with a floating cover serves as a storage chamber for the digester gas. Every 24 hours 13,000 to 15,000 cubic feet of gas is collected. The plant is heated by this gas and with heat from the incinerator. We are, however, connected to the city gas supply in case of an emergency.

Supernatant from the secondary digester is returned to the wet well ahead of the clarifiers and is recirculated through the plant.

Sludge Handling

The stored digested sludge, treated with ferric chloride and lime, is pumped to the Conkey vacuum filters where two Nash Hytor vacuum pumps, creating a suction of 24 to 26 inches of mercury, draw the sludge onto the filter drums, and two Gould filtrate pumps remove the moisture from it. As the drums revolve, two blowers force the cake loose from the drum just before the cake on the filter reaches the cutting blade which pares it off and casts it onto the conveyor belt. The conveyor belt empties it

On the right are the two Dorr clarifier basins. Just between them and to the left are the two Comminutors, and just to the left of these is the Detritor chamber.

NEW LONDON'S PLANT AND GARDEN

RIGHT: *Looking down fro mthe secondary digester at two of the flower beds.*

BELOW: *The plant as it looked in 1941. At left background is the pump house; in the center, the main building; and right, the primary and secondary digesters.*

PHOTO COURTESY OF THE DORR CO.

into a waiting truck which hauls it to a storage pile.

When sludge cake is needed for fertilizer, we run it through a Royer sludge disintegrator to break it up and mix some of the ash from the incinerator to supply the potash which it lacks.

Educating the Public

At the time the sewage plant was completed we realized that the public's idea of a sewage treatment plant was hardly in consonance with the truth, at least as far as our plant was concerned, for sewage here is handled in such a way that there is practically no odor. In casting around for some means to attract people to the plant so that they might see for themselves how odorless it actually is and how efficiently it treats the sewage, we decided to landscape the grounds with flowers. This summer is the third season. From the first the idea has been a success and each year has attracted more attention. This year we put in 30,000 plants at a nominal cost. Flowering plants that bloom from early spring until frost we arrange in beds and they make an extremely effective showing. The workers take a new pride in their plant. At the height of the growing season we hold open house on Sundays, an invitation is printed in the newspaper and our guest list runs from 50 to 100 people. In this way people are becoming aware of the advantage to the community as well as of the attractive and sanitary appearance of a modern sewage treatment plant.

This plant, which combines sewage treatment and garbage incineration, is one of five such installations in Connecticut. In our two 60-ton Geo. Allen incinerators we have found that we can burn garbage more readily if refuse is mixed with it. Accordingly we collect garbage and rubbish together and find that a better draft and more rapid incineration is accomplished.

We have been salvaging paper at the incinerator plant and realize about $350 yearly from it. This does, however, make but a little dent in our operating costs for the expense of the combined plant is $93,000 annually.

The County Humane Society collects all dead pets and other larger animals and brings them to the plant incinerator for disposal. Last winter during a storm a whale was grounded on the beach. The city dads, to prevent an odor, set to work immediately —rounded up a crew, armed them with cross-cut saws. This unusual butchering reduced most of the mammal to chunks which the incinerator could handle. Shortly the job was completed and the weighty problem reduced to inoffensive ash.

Solomon and Keis of Troy, N. Y., were the consulting engineers for this installation. The incinerators were installed by Geo. Allen & Son, Inc., of New York City, and Nichols Engineering and Research Corp. installed the vacuum filteration system. The plant was built by N. Benvenuti local contractors under the direction of City Engineer Kenneth H. Holmes.

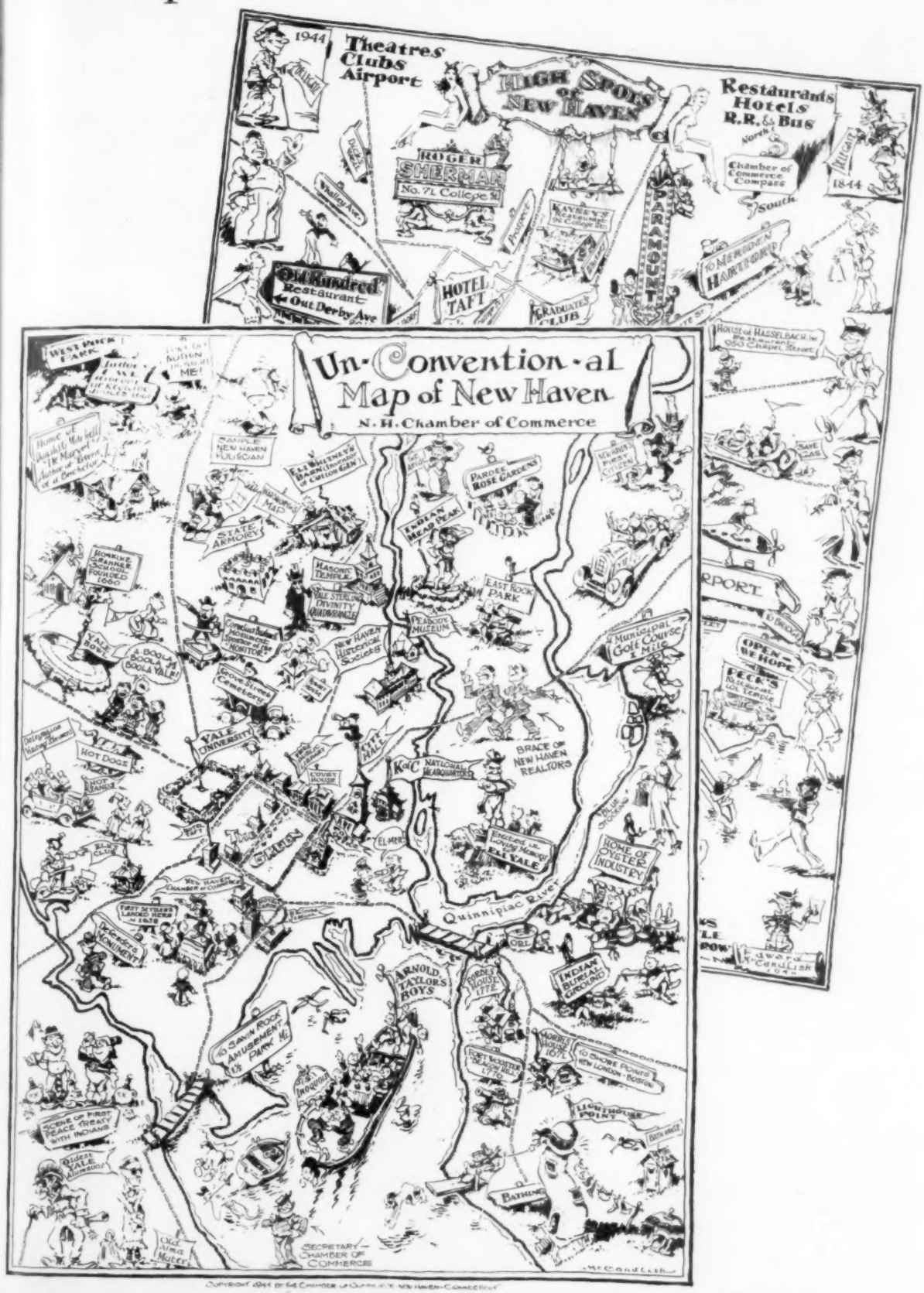
S. E. Water Supplies

ACCORDING to a report given before the Southeastern Section of AWWA by William L. Lamar, Associate Chemist, U. S. Geological Survey, Raleigh, N. C., the Coastal Plain in the states of Alabama, Florida, Georgia, Mississippi, North Carolina, and South Carolina is a source of productive ground water supplies. Most of the public supplies in this area obtain water from ground sources, though surface waters provide some of the larger cities in the Appalachian Highlands of Alabama, Georgia, North Carolina, and South Carolina. water for the larger public supplies is generally obtained from surface sources, since the ground water supplies usually do not yield sufficient quantities of water. The smaller public supplies obtain water from surface sources, springs, and wells.

Surface Supplies—Of these, many are soft, some are moderately hard. In general, the hardness will range from below 10 to about 100 ppm with the mineral content composed principally of calcium and magnesium bicarbonates. The treatment of the waters with alum, incident to filtration, increases the sulfate content.

Ground Supplies—These range in hardness from below 10 to about 500 ppm with the mineral content of many composed principally of calcium and magnesium bicarbonates and frequently, silica. In the Coastal Plain of the states of Alabama, Mississippi, North Carolina, and South Carolina, soft sodium bicarbonate waters are obtained from a number of wells. The calcium and magnesium originally present in these waters has been exchanged for the sodium in the base-exchange minerals in the ground. Some of the waters in mineral content contain appreciable amounts of sulfate or chloride, or both. Iron is an objectionable constituent of a number of the well waters. The larger public supplies usually remove iron when its presence impairs the quality of the water.

Maps to Aid Wartime Morale



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As a reminder of "home," the New Haven Chamber of Commerce is providing copies of these smile-raising maps for all its members to send abroad to the boys and girls formerly in their employ but now in the Armed Forces.

Philadelphia's Water Works from 1798 to 1944

By MARTIN J. McLAUGHLIN
Chief, Bureau of Water
Philadelphia

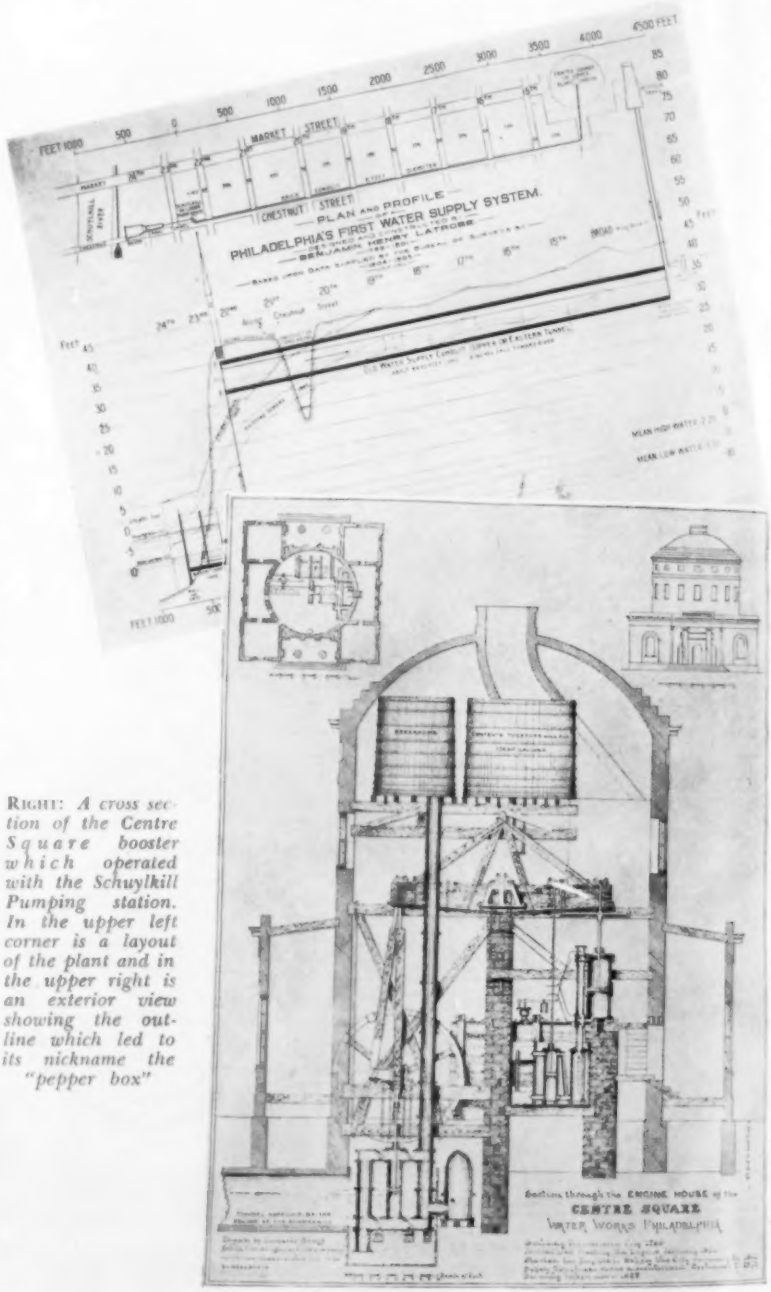
THE Bureau of Water of the City of Philadelphia is today one of the world's largest public utilities, yet it had very humble beginnings. Back in 1798 when the City of Philadelphia was young and comparatively small, the city fathers retained a pioneering engineer, Benjamin Henry Latrobe, to survey the possibilities of constructing a municipal water works system and from his plans in the following year evolved the first of the Philadelphia water works. This consisted of a large pump house for water power near the banks of the Schuylkill and an edifice of marble at the Centre Square to operate in conjunction with it as a booster station. This latter structure showed conscientious efforts to make it architecturally attractive, nevertheless, it bore the disparaging name of "the pepper box," in allusion to its circular form and appearance.

The water supply system had at first but little encouragement from the people generally and as an inducement the city was offered water free for a term of years. As late as 1803, only $960 annual rental was collected whereas nearly $300,000 had been expended on the enterprise. In 1814, there were 2,850 dwellings receiving water and paying a rent of $18,000 while the cost of supplying the water was $24,000—scarcely the kind of ledger the modern water works man would enjoy keeping. Three years later the city expanded its modest utility by installing pumps at the Chestnut Street Wharf on the Schuylkill River and the Bureau of Water came into being. About the first act of this young Bureau was to determine that this source of supply was not suitable and in 1815 it built a steam pumping plant further up stream at Fairmount where the water was purer. This plant was steadily improved with subsequent reductions in operating costs until in 1827 the annual cost of supplying the water was but $1,478, while the water rents from the city had risen to $33,560.

Our great citizen, Benjamin Franklin, early foresaw the need of a fresh supply of water for Philadelphia, and recommended the use of the Wissahickon Creek. However, as foresighted as he was, he did not realize how much Philadelphia would grow. If we were to use his suggested supply today, we would drain it in a week.

There was little or no desire expressed by the citizens of Philadelphia for any other than their good well water till after the yellow fever of 1793. Then, when thought was alive to every

BELOW: *Diagram showing Philadelphia's first water system*



RIGHT: *A cross section of the Centre Square booster which operated with the Schuylkill Pumping station. In the upper left corner is a layout of the plant and in the upper right is an exterior view showing the outline which led to its nickname the "pepper box"*

suggested danger of disease, the fact that well water was no longer safe was increasingly recognized. After river water was introduced, many were still very slow and reluctant to give up their cold well water for the tepid Schuylkill water. Later numerous pits used for other purposes destroyed the pure taste of the well water and finally led to their total abandonment and a consequent increase in the use of the municipal water supply.

As Philadelphia rapidly outgrew its boundaries and absorbed many adjacent communities, the city gained several pumping stations, including those of the communities absorbed and others constructed by the Bureau of Water. The former have been replaced but the two sources of supply used at that time, the Delaware and the Schuylkill, are the same used today.

As time went on, the Schuylkill water shed developed, its wooded areas became largely cut over, and the river's flow level decreased proportionately. As a result, more and more water had to be taken from the Delaware River. Finally both supplies became increasingly contaminated and filtration was introduced starting on a partial scale in 1899 until in 1911 when all the water was filtered.

Operation and Organization

This public works unit, as it stands today, is the result of the development of the original units of the system with the addition of such improvements from time to time as the installation of rapid sand filters to replace certain of the original roughing filters, and the substitution of electric power for steam in some of the pumping stations.

The mechanical operation of the present water works is separated into three divisions: pumping, filtration, and distribution. There are five major and nine auxiliary pumping stations each having its zone of service. However, the auxiliary stations have equipment and flexibility which permit them to interchange in the case of an emergency.

The Bureau also maintains two stations for the purpose of charging the fire-line pipe system in the industrial and congested areas of the city. These stations are operated only in the event of a fire, and then for the purpose of maintaining a high water pressure at the outlets of the fire hydrants. These hydrants allow hose delivery directly without the use of fire department pumpers.

The functions of the Bureau of Water are the operating, extending, and maintaining of the city's water supply system and delivering the required quality and quantity at the proper pressures to the consumer and to the fire protection system.

The Modern System

The filtration plants have now expanded until there are five covering an area of 92 acres. One of these at Torresdale is the largest slow-sand filter plant in the world.

The purification process includes the use of chemicals and three types of filters: preliminary, mechanical, and slow sand. The effluent is sampled and analyzed daily. An interesting added feature of our filtration and purification plants has been the Ozone experiments conducted at the Belmont plant to control tastes and odors. The equipment was installed by the Ozone Processes Co., Inc., of Philadelphia. Reports show very satisfactory results. The characteristic residual from the ozone type of treatment is sweetish or purely chlorinous. The water is free from disagreeable taste more than 80 percent of the time. The remaining taste disappears before the water reaches the consumer.

Distribution is the final mechanical stage of the system. To convey this service to outlets there are 2,500 miles of pipe controlled by 49,800 valves and furnishing, in the event of fire, water to 20,500 fire hydrants, and an additional high pressure system of approximately 65 miles with 2,000 high pressure valves and 1,000 hydrants.

The largest means for water conveyance is a 10-foot 7-inch masonry conduit about 3 miles in length. The steel feeder or express mains range from 30- to 93-inch size and the cast iron mains are 4- to 60-inch size.

Population Stabilized

At the turn of the present century the average daily consumption was above 300 mgd and at present is only slightly greater. This halt in the increase of water consumption is due to two factors: a stable population, and a continuous water leak detection survey which includes pitometer surveys, hydrant to hydrant and house to house inspections which enable the location and repair of water leaks.

It is well that the population of Philadelphia is stable for our plant capacity does not greatly exceed the present consumption rate. Engineers are now working on plans for the expansion of facilities and funds for this expansion have been made available by an $18,000,000 bond issue. But because the material for building these extensions is difficult to obtain the contemplated improvements have been temporarily slowed up.

We are with every means at our command doing what we can to keep the demand for water within the available supply.

Combined with the plants of the water works and operated by the Bureau of Water are the Northeast Sewage Disposal Works, the Frankford Grit Chamber, and the Southwest Sewage Disposal Works, the Mingo Creek Pumping Station and the Southeast Pumping Station, the latter serving to prevent the overflow of

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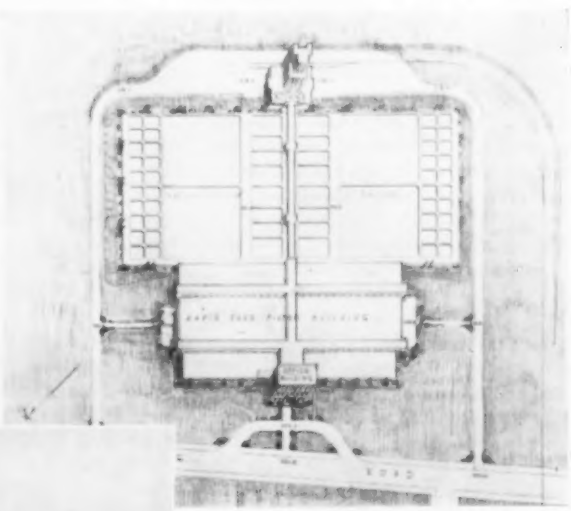


These are the proposed new additions to the Torresdale plant. It is at this plant that the largest slow rate filters are located. The new plant will have a rapid sand filtration system.

Will You Get the Most from Your Municipal Airport?

Make it easy for your citizens to use it by solving these specific contingencies.

By PAULDING SMITH
Municipal Airport
Hastings, Nebr.

THE plan you adopt must make this utility open to all of your people on a fair but definitely established basis. It should take its place as a department of government along with the police, fire and street departments, and be as open to the public as your auditorium, parks, or any other public place.

If you feel that you have done as well as you can with this problem please consider the following contingencies and ask yourself if your plan covers these conditions:

1. Sometime in the future your soldier citizens are going to come home. One, at least, will have distinguished himself as a flier. He may have been a shoe clerk, worked in a drugstore or been a student, but now he is a hero. He may never have flown until he went into the Army but he has learned a lot about the business and in all probability loves flying, wants to keep it up and earn his living at it. No one can blame him and as soon as he meets the requirements for civilian flying and secures his instructor's rating with the Civil Aeronautics Administration, he has every right in the world to do so. If he and ten or twenty like him are denied this privilege there will be more municipal furore than most cities have ever seen.

2. Several of your boys get Commercial licenses. They work during the week but on week ends they want to fly. In order to help pay for their planes they will want to fly passengers on Saturdays, Sundays, and holidays. The airport wants the activity, the boys need the money. Can they fly at your port? Are you sure?

3. Eight or ten boys or girls get together and buy a plane. Their club wants to fly but must hold the costs down. They require no fancy service and decide they can cut costs by erecting an individual hangar for their plane. They want to buy used lumber and build it themselves. This is a logical request that is being made every day. How can you answer this request?

4. In most every city there is a growing number of people who must get some place quickly and on short notice. Assuming there is now no plane on your airport to do this work, can any man properly licensed buy such a plane and in the hope of profit offer this service to your citizens?

5. One of your citizens with a private license buys a plane for his own pleasure and as an investment. He comes to the airport several times a week and usually has three or four others with him. May he take them all for rides? May his friends who have Student Permits and have soloed legally rent his plane for a sum privately agreed upon?

These five contingencies, with many special cases, are coming up day after day and are being handled in a variety of unsatisfactory ways. They must be met fairly and squarely if yours is to be a truly Municipal airport.

Equal Rights

The plan must offer every citizen the right, within the limits of his license, to fly and use the airport on the same basis that anyone else now enjoys. You may say, "This is impossible." It is difficult, yes, very—but by no means impossible. It has been done and is being done to the entire satisfaction of the operator, the public, and the local governing body.

Cities vary so widely in size and needs that blanket rules for operation are impossible. Some smaller towns rent a piece of ground and say: "O. K. boys and girls, go to it—this is your flying field." Most towns, numbering several thousand, propose and pass a referendum for the establishment of an airport. Some first build a large hangar, some first grade runways, but no matter how many unplanned moves are made, or in what order, the city usually ends by giving the concession or leasing the concession to someone to operate and develop.

By and large this is the best method. Undeniably it is best if the five contingencies mentioned are provided for. An operator who is going to develop and improve the plant and equipment, invest in airplanes, repair parts, etc., and give the community the type of service it needs, must have protection. He must feel assured that his labor and capital are not going to be taken from him at a moment's notice. However, he must not get to feel that the airport is *his;* and it cannot be operated as though it were his because the people will rebel.

By rebellion is meant the clamor of many boys who will say, "While we were fighting, this so and so tied up the airport." Or rebellion in the sense of boycott, in which case many of your people who would fly, don't and many who do, go to a neighboring town to fly, or clear off a "40" and make an airport of their own. Your port and your operator must have the support of the community. Each must know that he will be treated the same as everyone in like position to himself—the plan must meet every condition that may arise. Given the right setup every operator will profit, like every other businessman, in proportion to the service he renders to the community, and if his service is of value to the community they won't care particularly how much he earns. We must remember, our people have never liked monopoly. If they have submitted in cases, they have nevertheless insisted on regulation, published rates, no rebates, no preferential treatment of favored persons.

How can flying possibly be different? The seeds of the conflict are sown. Some will defer the solution by ignoring its existence, but it must be solved by every community or the airport will be a continuous headache.

Mayors and councilmen must think this through and set up the plan. The differences between the operator and city are easily reconciled once the operator's approach to the problem is enlightened. The differences between the operator and the public are reconciled when the plan adopted by the City is fair to all of them.

Where County and City Meet

Post-War Planning as a Joint City-County Project

By ANDRE M. FAURE
Executive Secretary,
The Regional Plan, Inc.,
Tucson, Ariz.

PIMA County, and Tucson, Ariz., are working out post-war plans together, smoothly, on the basis of a pre-war regional plan and a community habit of finding ways of working together. This is not to say there is never controversy between city and county, but the fact is, that the post-war problems have served to stimulate, even more, the cooperative impulses in this community.

Geography and history have something to do with this. Spread over 200 square miles of a broad colorful desert valley between rugged mountains of Southern Arizona is Tucson, known to its friends and citizens as "The Old Pueblo"—grown from an historic Spanish colonial outpost to a regional community of over 60,000. Set apart by miles of sparsely settled desert from any other urban center, this is truly a self-contained community.

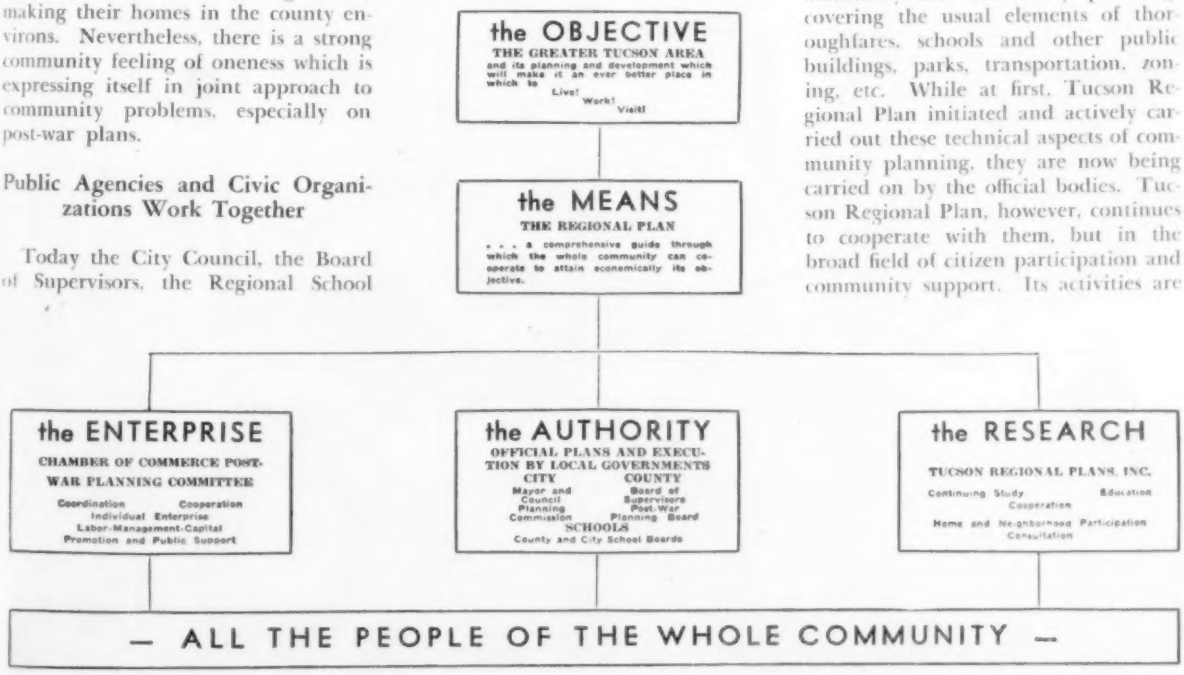
Like many other communities, however, it is not wholly covered by one municipal jurisdiction. The city of Tucson comprises only eight of these 200 square miles, with a population of about 40,000, the remaining 20,000 making their homes in the county environs. Nevertheless, there is a strong community feeling of oneness which is expressing itself in joint approach to community problems, especially on post-war plans.

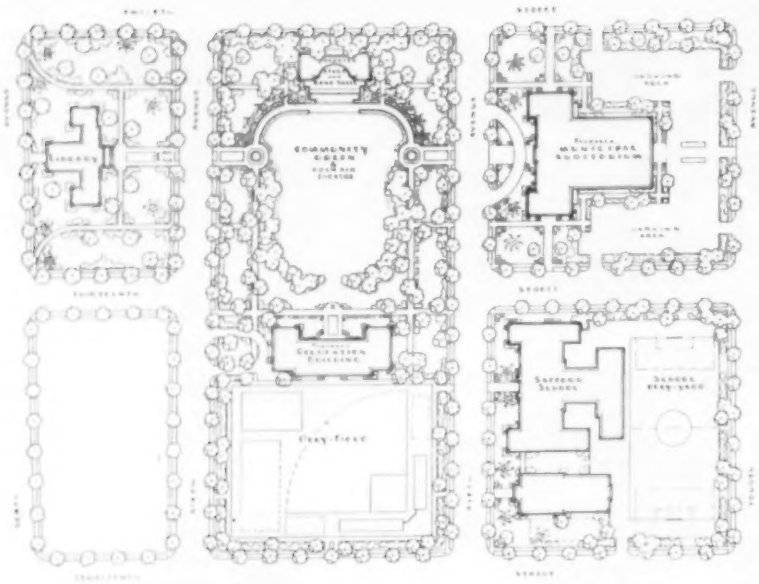
Public Agencies and Civic Organizations Work Together

Today the City Council, the Board of Supervisors, the Regional School District, and other organizations representative of the economic and social life of the community are working effectively together toward a well-defined goal embodied in the comprehensive Regional Plan. Two civic organizations, particularly, have had a prominent part in developing a community-wide approach to common problems, notably the Chamber of Commerce and Tucson Regional Plan, Inc.

Initiated in peacetime, the comprehensive Regional Plan was completed in June, 1943. It was prepared under the joint auspices of Tucson Regional Plan, Inc., together with the city and county governments. As in most instances where comprehensive planning is initiated, there was found a lack of necessary instruments for attaining its objectives. An early accomplishment of this operation was the re-establishment of a City Planning Commission on a more up-to-date basis of organization with responsibility to advise and assist the City Council on matters. Later the adoption of state legislation made possible the establishment of a County Planning Board with special post-war responsibilities. Both these bodies have been closely integrated in their work and personnel. The City Planning Commission in general has the usual form of official members and citizen members, but in addition, is purposely set up to include also the county engineer and a citizen resident of the county. Later, on the formation of the County Board, the city manager was designated ex officio a member of this board. Furthermore, both these bodies are served by the same office and staff, jointly maintained by the city and the county on an equal financial basis, located conveniently and appropriately in the City-County Health and Welfare Building.

The above briefly outlines the official machinery for community planning, covering the usual elements of thoroughfares, schools and other public buildings, parks, transportation, zoning, etc. While at first, Tucson Regional Plan initiated and actively carried out these technical aspects of community planning, they are now being carried on by the official bodies. Tucson Regional Plan, however, continues to cooperate with them, but in the broad field of citizen participation and community support. Its activities are





PROPOSED CULTURAL AND RECREATIONAL CENTER, TUCSON, ARIZONA

Part of the Comprehensive Regional Plan jointly sponsored by Tucson Regional Plan, Inc., the City of Tucson and Pima County, prepared under the direction of Ladislas Segoe, Planning Consultant, assisted by C. W. Matthews and Andre M. Faure, resident planners, and Phillip Larsen, Town Planner. This proposal affords a special opportunity to create a useful center and a buffer between the central business district to the north and an attractive and much needed in-town apartment district to the south. About 70 per cent of the proposed area already exists in public ownership, including the Library, Safford School, and Military Park, extending north of Thirteenth Street.

now principally educational and are carried on under its own budget derived from membership and private contributions.

Chamber of Commerce Cooperates

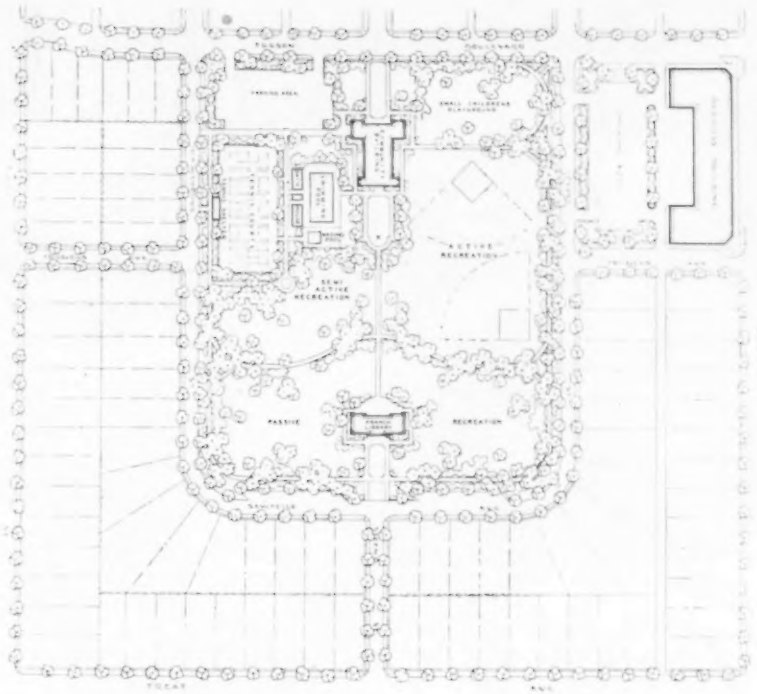
With the realization that the post-war period will require special adjustments, the Tucson Chamber of Commerce early formed a post-war planning committee. This committee of the Chamber is broadly representative of community interests and includes representatives of the official planning bodies, and other officials. Early in its work it was recognized that many of the post-war problems it discovered fell naturally or touched on the responsibility of the city and county planning bodies. At first there appeared in the public mind some confusion and a belief that there had been created overlapping effort. This was soon dispelled, however, by a definition of the sphere of responsibility and contribution of each one of the interested agencies and their relations to each other. This is set forth graphically in the accompanying chart. Briefly, it is seen that the common objective is a better community defined by a Regional Plan, to be achieved through the cooperative effort of the local public authorities with the cooperation of representative civic groups, each of the latter with a somewhat special contribution and approach.

In general, the Chamber of Commerce Post-War Planning Committee represents coordination and cooperation in the development of plans for private economic enterprise. We see their function as an agency for discovering special problems and routing them to existing agencies equipped to develop plans for their solution, and,

PROPOSED CIVIC AND GOVERNMENTAL CENTER

Here also is opportunity to provide a buffer between the central business district and an in-town apartment district. This plan will be accomplished through steps already initiated to acquire the rest of the area needed for a new City Hall and closing of Meyer and Court Streets, merged into a central park feature with public and semi-public buildings grouped around it. The Courthouse and Health and Welfare Buildings exist, architecturally designed in harmony with the Spanish tradition of the Southwest. A special feature of harmonizing business development with the center is the proposal to open a plaza from Stone Avenue on the central axis of the courthouse, thus creating a direct-tie-in with Stone Avenue, one of the principal business streets.

This is the traditional site of government since Spanish colonial times—first, as the walled presidio of the Spanish governors and garrison; then, the site of the territorial government after the Gadsden Purchase, marked still by "Governor's Corner" just north of the Courthouse on the Plan—the old adobe home of the former territorial governors.



EXAMPLE OF A NEIGHBORHOOD COMMUNITY CENTER

This design is based on the site of an existing park, plus about 300 percent more park area needed for the expected neighborhood population. A "master development plan" has been prepared by the City Park Engineer on the basis of this study, and accepted by the Council as a guide to current and post-war improvements. The swimming pool exists now and steps have been taken to acquire the additional ten acres needed, some of which will be obtained through closing of platted streets.

when these plans are agreed on, to function by "putting their shoulder to the wheel" to get the plans in operation. Some of the problems they have worked on, for instance, are better roads, water supply, and aviation development.

The Job of Tucson Regional Plan

As suggested by the chart, the job of Tucson Regional Plan, Inc., is seen in research on new phases of community planning and continuing study, education of the citizens of the community and enlisting their active participation through neighborhood activities, and in general, cooperation and public support to the official planning bodies. Through each of these and the public bodies, the people of the whole community have an opportunity to work toward the common goal.

The post-war plans being developed actually have little to distinguish them from a normal 6- to 10-year improvement program based on a comprehensive plan and operating department needs. There is naturally a difference in the priority of some over others depending on their nature and the potential type of employment they may be needed to serve.

The important result of the close working relationship here between county and city is that at each step of the way there is practically automatic coordination—and in effect their programs are one.

HENRY M. WAITE

Engineer, City Manager, Civic Leader

THE death last month of Henry M. Waite recalls to the editors of THE AMERICAN CITY a paper presented by him at the June 1914 Conference of Mayors and Other City Officials of the State of New York, a considerable part of which was published in this magazine the following month.

In this keen and prophetic statement of 30 years ago, the then City Manager of Dayton, Ohio, pointed out that the commission-manager form of government as adopted in Dayton was "the application of the newest development in organization to a municipality." Mr. Waite lived long enough to see the adoption of charters quite similar to that of Dayton by 572 municipalities throughout the United States—this spread of an idea being influenced in no small measure by its success in Dayton.

A significant excerpt from the above-mentioned paper by Mr. Waite follows:

"I think everyone will agree that there has been an awakening all over the country to the inefficiency of the old forms of municipal government and to the fact that we ourselves, the voters, made the conditions what they are. We may be dissatisfied at what is being accomplished, but, as a matter of fact, we are responsible. We have allowed innumerable laws and statutes to be passed which surround municipal work with a network of red tape, making progress and efficiency impossible. We, to protect our communities and ourselves—as we thought—allowed these laws to be passed, and there we ended our interest in municipal affairs. We elected people to office and then hampered them, then condemned them. I have thought, since I have been in municipal work, that if it was possible to get one of these public jobs in the open where we could handle it as our big businesses are handled, most remarkable showings could be made."

Following a description of the machinery of the new charter, Mr. Waite voiced a plea for more effective education in good citizenship, and added:

"Finally, I should like to emphasize the following very important point—one I think the American people have lost sight of, but that they are now beginning to grasp: *'No matter what form of government a city may have, if the people themselves are not interested in it and participate in it, that government will never be a success.'*"

Observations on Post-War Planning in the United States

Here is a keen analysis of progress to date on post-war planning and a dynamic plea for a more realistic approach to this problem, the solution of which may very well determine in part the well-being of the post-war United States

By R. S. RANKIN
Sanitary Engineering Division
The Dorr Company
New York

AN 8000-mile tour through the Western United States indicates that active sanitary engineering planning for the future is probably, except for isolated areas, at its lowest in years. The "Blueprint Now" campaign seems to have started a lot of thinking and talking with the object of blueprinting sometime—but not just yet. At least this is the result of the writer's observation on a two-months' tour.*

It is difficult to point to any exact cause of this apathetic attitude. City officials are probably wrapt up in the day-by-day progress of the war and in taking care of problems that war has imposed upon them. In the Pacific Coast states in particular, congestion, with all it entails, is acute; transportation of war workers is a major problem and, with shortage of help in most municipalities, it is not surprising if, after trying to solve their immediate headaches, they have little or no time left to think of the future.

Preoccupied With War Problems

Many sanitary engineers are still working on minor war projects which keep their limited personnel tied up. Consequently, they do not have the time or urge to preach the gospel of "Blueprint Now." The state boards of health are doing their best to promote the planning of needed post-war improvements and in one state in particular they seem to be making progress, but this is the exception. Like other public agencies, they must operate with limited personnel—which means they must devote most of their time to handling more acute problems.

In some localities, delays in planning may be justified on the grounds that present shifts in population are only temporary and that post-war adjustments will alter these conditions in a manner as yet unpredictable. This may be true in some instances where towns of a few hundred have swollen to several thousand due to a single industry or adjacent military base. These situations are being corrected by federal housing projects. But the large majority of cities have done little in the way of normal municipal construction for three years or more and the backlog of ordinary improvements alone seems so enormous as to justify independent planning.

Many cities, it is true, have gone to the trouble of listing a series of major projects for post-war work but, in general, this effort seems to be confined to mere statement of intention with no further action other than listing of estimated costs. It is difficult to understand how these estimated costs are determined. They do not seem to be the result of engineering studies except in a limited number of localities. The intentions are probably well-meant, but as an index of activity, they seem misleading.

Planning by the Larger Cities

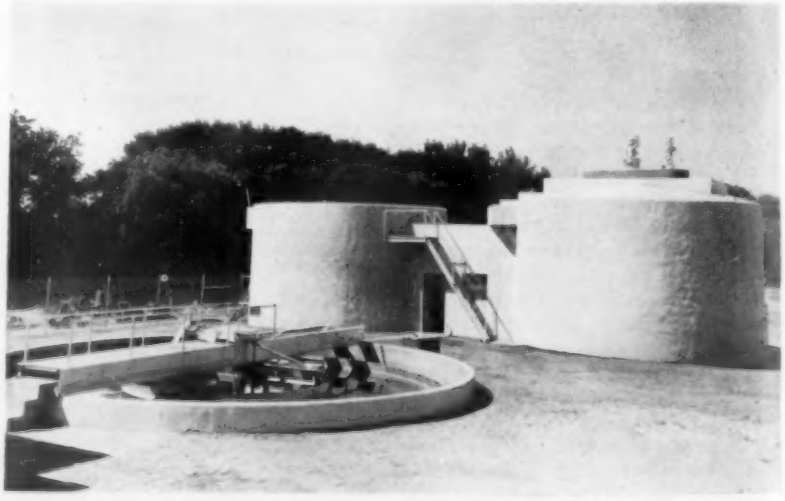
Cities like Los Angeles, San Francisco, and Portland are proceeding with definite plans with a history of sound engineering background. Smaller communities could well follow their example on a reduced scale. The spark for setting this off must come from somewhere; within the cities themselves, if possible, but from outside in many cases. With engineering services available now as never before, cities would do well to ponder whether they should not avail themselves of this talent immediately. Six months or even a year is none too long to plan works intelligently. It is most probable that they will want to start these projects within that time limit, and delay serves no purpose. The excuse that major changes in methods and processes will come immediately after the war is not borne out by fact where sanitary engineering works are involved. The question of federal aid in ultimately financing the project has no bearing on the preliminary work. In fact, it would be well for cities to plan by themselves now what they want instead of waiting until federal authorities dictate what they shall have.

Cities planning post-war work can well consider the philosophy quoted by the interesting 70-year old operator of the Carmel, Calif., sewage treatment plant:

WISDOM is knowing what to do;

SKILL is knowing how to do it;

VIRTUE is doing it.



This Carmel Sewage Treatment plant is operated by Bernard Rowntree, 70-year-old philosopher.

* In some localities since writing the foregoing, conditions have changed and active post-war plans are under way.

Let's Lick the Air Traffic Problem Before It's Handed to Us

By WILLIAM T. PIPER
President
Piper Aircraft Corporation
Lock Haven, Pa.

THE POSSIBILITIES *of aviation are so tremendous as to be difficult of exaggeration. Just as private automobiles, by their millions, have become the critical factor in the street and highway traffic problem, so the shorthaul and private planes are expected in a few years after the war to create an entirely new set of traffic conditions. Not only must local facilities be provided to handle these ships, but the very development of local aviation demands the prior presence of landing facilities. "There was a farmer in rural New York," says Mr. Piper in this stimulating article, "who wanted to learn to fly. He thought the matter over and decided: 'Heck! I can take off from my farm, but there's no place to land in town. What's the use? I'll stick to my flivver until our village gets a landing strip.'" Reading this article it is difficult to realize that a new, a novel traveling age is almost upon us and it is even more difficult to get busy and meet it practically in our own communities. But it will have to be done—won't it?*

THE days when flying will become the most popular means of transportation is on its way—and every town in America can be sure flying is the most flexible means of transportation the world has ever seen. You can travel by boat only where there is water . . . by automobile only where the highway leads . . . by train only where the tracks are. The air is everywhere!

At the advent of the automobile, the entire country already had a network of roads which needed only to be improved to meet the requirements of the automobile.

The airplane, however, has arrived in a world that has made no preparation to accommodate it. The war has produced hundreds of thousands of pilots, many from your own home town. When peacetime comes, they and many other air-minded citizens will want to take off and land in your community. They will want the convenience of landing areas.

WHAT TYPE LANDING STRIP?

Start your landing facilities with a straight, sod strip. It should run into prevailing winds and include air-marking numerals, windsock, direction pointer, and corner markets. Valley towns where winds would blow up and down the valley are ideal locations for the straight strip.

L-shape strip (above) is an expansion of the straight strip allowing planes to land and take off from 4 directions. At right is the T-shape strip. Local conditions, available land, and type of terrain will determine whether the L or T shape is more practical.

Now, to determine what share your town will have in the coming air age, let us consider the three categories of future flying. These are long-distance air transportation, short-haul air transportation and private flying. From the descriptions that follow, you will see which types will affect your town.

If the average small town is to get on the aviation band-wagon, it will not do it by saddling its population with a big airport investment that will never pay off. It can climb aboard only by helping the little pilots, the flying youngsters, the small-time operators and the feeder lines, to satisfy the demand for utility in flying.

We can safely assume that the short-haul will be a big factor in the coming air age. Every town in America can avail itself of this short-haul business. To do so more quickly and economically only the simplest of grassy meadows or landing strips will be needed because the air taxis and air bus lines, which will take care of short-haul air transportation, will need no "master" airports. They will act as feeder lines from local neighborhoods into airline centers. They will feed a tremendous flow of passenger and freight traffic into the large terminal fields. They will link your town with the entire world air transport system, thereby furnishing the long-distance airliners with many thousands of passengers.

The man of little income, everywhere, is going to fly. He will use the large city airport if he hasn't a smaller one in his own locality. To thin out the congestion that would result in an excessive use of the large airports by private planes, landing strips and small airports are needed in great numbers in the towns, and even in the vicinity of the larger fields.

If your town is small, one landing strip or small airport is sufficient. If it is medium-size, it should have one to each quarter. If it is large, it should be entirely surrounded by landing strips or small airports. New towns should be built around an airport. The landing area should be close to the highway, near town and, in many cases, could be built and maintained by the highway department. Another consideration also makes it desirable to go slowly on the expediture . . . fly-

(Concluded on page 107)

New Municipal Asphalt Plant for New York City

By EDGAR J. NATHAN, JR.
President, Borough of Manhattan

SOME thirty years ago, a municipally owned and operated asphalt plant was built to serve the paving needs of the Borough of Manhattan. This plant was an unsightly structure, with tanks, conveyors and other equipment exposed, not to mention stockpiles of materials used in the manufacture of asphalt.

While the site of this plant at 91st St., and East River was almost ideal for accessibility to water-borne materials and its centralized location for paving repairs in the Borough, it nevertheless had a detrimental effect upon the surrounding community, keeping land values and development down and at the same time constituting a nuisance to adjacent residents and enterprises.

The capacity of this old plant, which averaged about 450 tons of paving mixture per day, was ample for the maintenance requirements of Manhattan streets three decades ago, but as time passed and motor traffic rapidly increased, the old plant fell short of meeting the growing maintenance needs. Another factor in the decision to replace it, was the outmoded and worn equipment which necessitated frequent and costly replacements.

Centrally Located

The new Municipal Asphalt Plant, which was officially completed last May, occupies the site of the old plant. The old location in the heart of the Borough had been retained to make it accessible to river transportation for the source of raw materials and also because of its central position with regard to the streets of the Borough, thereby reducing to a minimum the distance required to haul hot asphalt to places of repair.

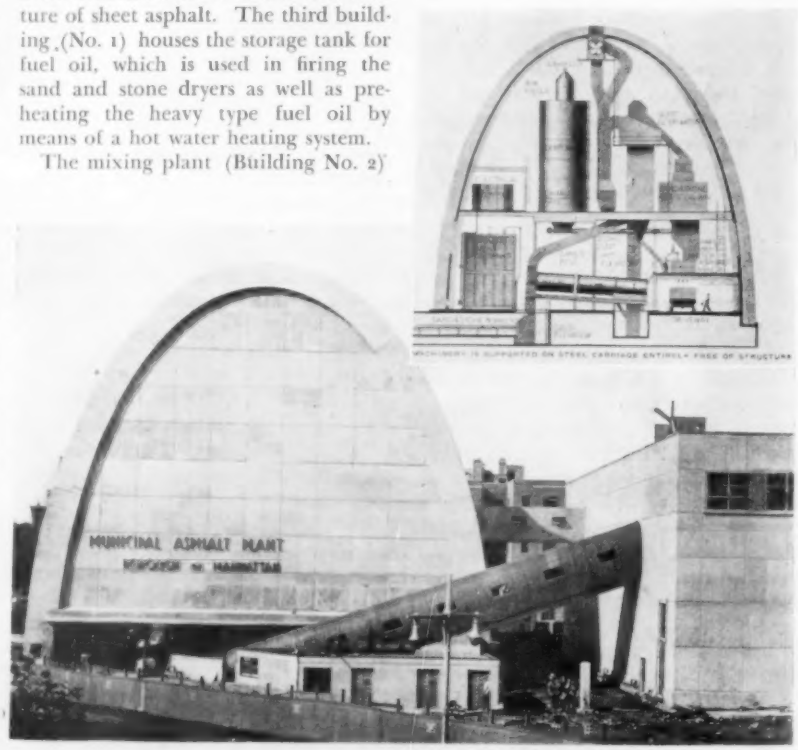
Whereas the old plant was outworn, malodorous and dusty, the new plant is clean, silent, and efficient. The new plant is composed of three separate buildings which completely enclose all equipment, machinery and stockpiles of material. These buildings have received a distinctive and unusual architectural treatment, so much so, in fact, as to gain the admiration of such exponents of contemporary architecture as the Museum of Modern Art. The designers have succeeded in creating a structure that does not resemble the ordinary asphalt plant but which, nevertheless, is consonant with the equipment layout. The museum cited this new structure as being one of the most outstanding in recent years.

The completion of East River Drive in this area has created possibilities of real estate development which heretofore had been non-existent. The completion of the unusual new asphalt plant blended so well with the aesthetic features of the Drive that there was no hesitancy on the part of investors to build a large modern high-class apartment project immediately opposite the plant on E. 90th St.

The three main buildings of the new plant were constructed of reinforced concrete. The largest is the oval-shaped structure (Building No. 2), which houses the drying, mixing, and other equipment required to turn out the finished paving mixtures. Building No. 3, which is connected by an enclosed conveyor to Building No. 2, contains the raw materials, such as stone and sand used in the manufacture of sheet asphalt. The third building (No. 1) houses the storage tank for fuel oil, which is used in firing the sand and stone dryers as well as preheating the heavy type fuel oil by means of a hot water heating system.

The mixing plant (Building No. 2) was constructed in the form of an elliptical arch, well adapted to the functional requirements of the machinery within. The primary structural members are four concrete arch ribs varying in cross-section from 6 feet 6 inches by 2 feet 6 inches at the base, to 4 feet 6 inches by 2 feet 6 inches at the crown which is 90 feet above the operating floor. The ribs are reinforced by light angle trusses which are encased within. These trusses were pre-fabricated and permitted rapid and accurate centering of the ribs, and provided supports for the form work used to pour the concrete around them. The barrel walls are 8 inches thick and reinforced to span between the arch ribs. The high vertical end walls are of concrete slab, beam and girder construction designed to resist wind pressures.

In the storage bins (Building No. 3) the sidewalls and partition walls separating sand and stone were de-



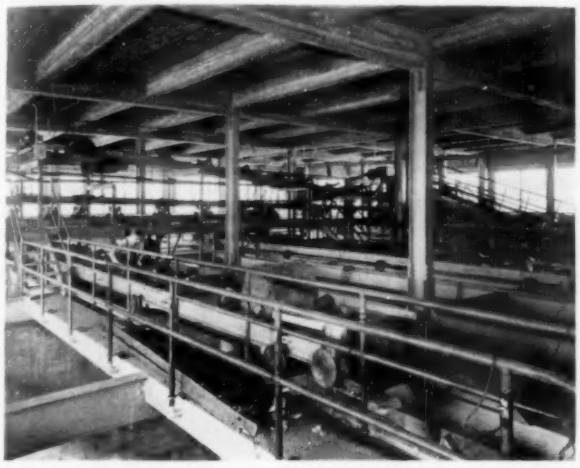
MANHATTAN'S NEW MUNICIPAL ASPHALT PLANT

RIGHT: *The building which houses the storage bins. The tube leading to it is the conveyor belt which carries aggregate from barges in the river and into the bins.* UPPER RIGHT: *A cross-section of the mixing plant showing how the equipment is arranged and housed.*

signed to retain safely the contents up to a maximum height of thirty-two feet under all possible conditions of loading.

Due to the nature of the sub-surface conditions, it was necessary to drive piles to rock in order to provide a sound foundation for each of the buildings.

The product of the plant is sheet asphalt and is composed of binder and wearing surface. The binder consists of small broken stone and sand, cemented together with liquid asphalt.



The belt conveyor system carries the various aggregates from barges in the river up to this building where it distributes each into a separate storage bin.

The wearing surface is composed of finely graded sand and a mineral filler, usually pulverized limestone, likewise cemented together by liquid asphalt. The liquid asphalt is a distillate obtained from petroleum.

Delivery of Materials

The raw materials, such as sand and stone, are delivered by barge to the bulkhead opposite the plant. A traveling crane installed along the bulkhead wall lifts the material from the barge and dumps it into a hopper located over a belt conveyor which carries the material through a tunnel underneath East River Drive and then up an inclined enclosed tube into Building No. 3, where the material is transferred to auxiliary belt conveyors for distribution over the bins. The liquid asphaltic cement is pumped through underground piping from a supply barge to the main storage tanks in Building No. 2. The fuel oil is similarly transferred from a barge to a storage tank in Building No. 1. The limestone dust is pumped by means of a suction system from a barge through underground tubes to the storage silos in Building No. 2.

The sand and stone is reclaimed from the cold storage bins and conveyed by means of belt conveyors in tunnels to Building No. 2 where the mixing machinery is located. The material is then lifted from the reclaiming conveyors by means of bucket elevators and transferred to the dryers. The dryers are arranged with oil burners at both ends to heat the material as it passes through the revolving drum, and the moisture present is driven off while the temperature of the material is brought up to that point required for mixing. The material is then lifted from the dryers by bucket elevators and discharged into vibrating screens which separate the aggregates into their separate compartments in the hot material storage bins below. The hot material storage bin is tapped as required and the material flows into a weighbox suspended beneath. The various aggregates are weighed to maintain the proper proportions. A screw conveyor leading from the limestone dust bins feed into the weigh box the proportionate amount of dust required. If binder is required, sand and stone are used. When topping is desired, sand and limestone dust are poured into the weighbox.

When the weighbox has been filled to the proper proportions, the materials are dumped into the mixer. The hot dry ingredients are then joined with the proper proportions of liquid asphalt which is pumped from the storage tanks to the surge tanks and then to the mixer. The amount of liquid asphalt required is controlled by a flow meter. After a pre-determined period of mixing and all the ingredients have been thoroughly mixed, the mixer gate is opened and the batch is dumped into waiting trucks below.

The old plant depended upon a high pressure steam system to furnish the necessary heat to keep the liquid asphalt from congealing as well as to provide a power source to drive the equipment. The new plant, however, utilizes electricity not only as a source of power to drive the motors attached to the equipment, but also to heat the asphalt tanks and pipe lines. The complete electrical heating of the asphaltic cement from the time it leaves the barge until it reaches the mixer is an innovation.

The control equipment for the complicated electrical apparatus has been located in a sealed room high in the building to protect it from abrasive dust created by the plant operation. This room, known as the Control Center contains the power distribution panels for the entire plant.

Ultimately, a complete dust collecting system will be installed which will create a completely dust-free condition within the plant as well as trap the little dust that might otherwise escape to the outside.

Inventory of Major Equipment

Screens	ROBINS CONVEYORS, INC. Passaic, N. J.
Control Boards	GENERAL ELECTRIC CO. Schenectady, N. Y.
Scales	FAIRBANKS, MORSE & CO. Chicago, Ill.
Motors	GENERAL ELECTRIC CO. Schenectady, N. Y.

Control Room

The new plant, which cost a million dollars, has a peak load capacity of 750 tons per day with only two separate units installed. Provision has been made for the future installation of a third unit which will increase the capacity by 50 percent. The storage facilities of the plant are great enough to operate at capacity for more than three weeks without any replacement of raw materials.

The fact that this plant went into operation just as petroleum by-products became available and just when the smooth functioning efficiency of Manhattan's streets was of most vital importance to the war effort reflects the foresightedness of our government planners.

The new plant, which is municipally owned and operated, was designed and built by the Department of Borough Works, Office of the Borough President of Manhattan, under the immediate direction of Walter D. Binger, Commissioner of Borough Works, and Lester C. Hammond, chief engineer. The F. D. Cummer & Son Co., were the contractors who installed the equipment and machinery. L. H. Csanyi is plant manager.

FWA Tabulates Post-War Public Works Pool

REPRESENTATIVE William M. Colmer, Chairman of the Special House Committee on Post-War Economic Policy and Planning, announced on September 13 that he had received from Major General Philip B. Fleming, Federal Works Administrator, the report of a survey covering post-war public works contemplated by state and local governments.

The report shows that the great bulk of these projects are in the "preliminary" and "idea" stages of plan preparation. Plans in the completed stage represent total estimated cost, including land purchase, of $969,858,000; plans in the "preliminary" stage, $3,701,884,000; and plans in the "idea" stage $6,297,387,000. These figures include all public works divisions listed below plus proposed projects for schools and other educational facilities.

Projects in the "idea" stage are those contemplated for construction within the next six years. The report says: "About two-thirds of the plan preparation which has been brought to the completed stage is reported by the state and local governments of only five states—New York, California, Illinois, Michigan, and Ohio.

"The vast majority of cities of under 25,000 population have as yet made very little progress in planning for their needed post-war public works. While relatively few reports have been received from non-Metropolitan counties and from small communities, there is good reason to believe that those not reporting have made little or no progress in planning their needed post-war public works. In the vast majority of states, the total completed plans reported by state and local governments represent costs that are very small in proportion to the population."

The report also discloses that in only four states—New York, California, Michigan, and New Jersey—has legislation been enacted authorizing the provision of state funds to aid city, county, town, and village governments in financing the preparation of plans for proposed post-war public works.*

It continues: "The reports indicate that the states and local governments believe there is urgent need for the federal government to establish a definite policy with regard to the action the federal government will or will not take, in providing assistance to them in the preparation of plans for their post-war public works."

[This action was taken just before Congress recessed last month See page 5 of this issue.]

* See THE AMERICAN CITY, Sept. 1944, page 5, "State and Federal Aid for Blueprinting."

TOTAL POST-WAR PUBLIC WORKS PROJECTS COMBINING (1) ALREADY PLANNED, (2) BEING DESIGNED, (3) BEING PLANNED, (4) PROPOSED—AS PREPARED FOR CONGRESS BY FEDERAL WORKS AGENCY

Thousands of Dollars, 000 omitted

	STATES		COUNTIES		CITIES		STATES, COUNTIES, CITIES		
	Cost	Not Financed	Cost	Not Financed	Cost	Not Financed	Cost	% of Total	Not Financed
Streets and highways	*	*	622,432	476,785	2,058,604	1,871,283	2,681,036	23.6	2,348,068
Bridges	*	*	325,554	263,185	630,958	553,787	956,512	8.5	816,972
Airports	61,081	60,991	59,022	49,179	390,397	361,067	510,500	4.5	471,237
Sewer, water, sanitation	115,564	111,891	248,972	233,856	2,468,009	2,248,607	2,832,545	25.0	2,594,354
Hospitals and health	293,415	102,768	94,907	81,344	226,100	204,731	614,422	5.5	478,843
Public buildings	402,903	252,205	184,601	170,928	417,594	392,444	1,005,098	8.9	815,577
Parks, recreation	208,854	179,241	69,964	61,856	438,005	417,147	716,823	6.4	658,244
Miscellaneous	182,364	148,190	307,650	219,170	1,499,014	1,027,209	1,989,028	17.6	1,394,569
Total	1,264,181	945,286	1,913,102	1,556,303	8,128,681	7,076,275	11,305,964	100.0	9,577,864

* Figures not available.

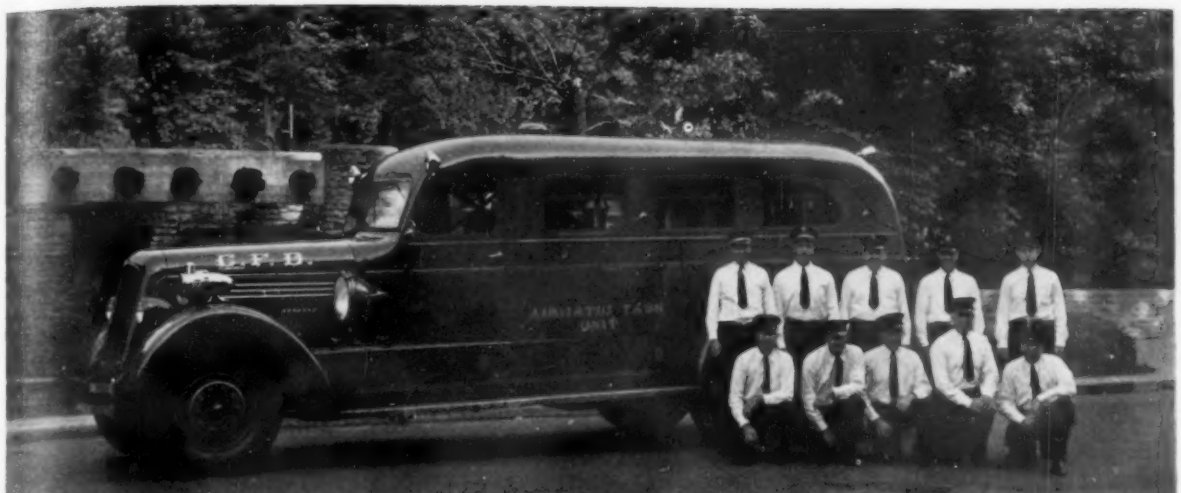
Local Government Finance Hampered by State Constitutional Provisions

POINTING out that state constitutions are becoming in too many instances the refuge of special interest groups and tend increasingly to incorporate unwarranted detail, Carl H. Chatters, Executive Director of the Municipal Finance Officers Association, urges a return to the basic ideas of the earlier state constitutions which were designed broadly to protect life and property of *all* the citizens. Unless liberalized by popular vote or court interpretations, the state constitutions, in Mr. Chatters' opinion, will become the instruments by which the states further emasculate themselves and by which the local governments will be drawn into the whirlpool of a government centralized at the national level.

Speaking before the National Tax Association, in St. Louis on September 13, Mr. Chatters enumerated some of the state constitutional provisions that affect local government finance:

1. Too rigid limits on local tax rates
2. Prohibition against sharing state collected taxes with the local governments
3. Exemption from local taxation of certain classes of property
4. Earmarking of state revenues for limited purposes
5. Stipulation in constitutions that localities may use only certain types of taxes or that localities must limit excise or occupation taxes to a percentage of the state tax
6. The so-called "uniformity" clauses which prevent classification of property or graduated rates of taxation
7. Limitations on the rate of increase of local taxes
8. Removal from taxation of subjects formerly taxed by local governments
9. Limitations on maximum salaries of public officers
10. Failure to facilitate reorganization of the local units of governments
11. Writing into constitutions details that should be left to legislative action

A copy of Mr. Chatters' paper, examining these constitutional barriers in their effect on local governments, may be obtained from the Municipal Finance Officers Association, 1313 East 60th Street, Chicago 37, Ill.



Cincinnati's All Purpose Rescue Unit

Its total equipment with examples of its uses and effectiveness

By BARNEY J. HOUSTON
Fire Chief
Cincinnati, Ohio

THE Life Saving Squad of the Cincinnati Fire Department consists of a rescue unit and an ambulance unit. The rescue truck, built to Cincinnati specifications by the Seagrave Corporation and installed in November 1942, is fully enclosed and carries equipment for any emergency. The machine, costing about $18,000 is powered with a Seagrave 12-cylinder 240-hp motor. The body is of all-steel welded construction and is equipped with safety glass.

An Ingersoll Rand compressor furnishes 350 cubic feet of air at 100 pounds pressure, and is used to operate the following air tools:

Two Ingersoll Rand paving breakers with different bits, for cutting hard and semi-hard substances such as concrete, asphalt, clay, wood; 1 jackhammer for drilling holes in hard and semi-hard substances; 1 clay digger, a small air hammer, used in close quarters and on light work and with different bits—cuts concrete, clay, rivets and bolts; Mine Safety Appliances portable air movers, 3-inch and 10-inch, used to ventilate areas of smoke and gases, either by ejecting the gases or by injecting fresh air or both; air-saw that cuts wood to a depth of 4½ inches; 2 Mine Safety Appliances airline masks supplied with compressed air through a reduction gage giving respiratory protection in any atmosphere and used under water.

The air compressor has two 2½-inch outlets, and four air-hose outlets. Standard C.F.D. hose can be used from 2½-inch outlet, giving tools a great range of use. Only rubber air hose is carried on apparatus, 400 feet on each reel. Fittings and adapters for various hose layouts permit use of all air tools at one time.

An extremely handy device carried by our rescue truck is an automatic safety fire escape made by C. F. Davy, Syracuse, N. Y. Used when necessary to remove a number of persons from upper stories of a building, it consists of wire rope running through a governor or braking device with a sling on each end of the rope. The apparatus is hung above the desired location, and from ladder or on ropes, the sling is placed around the victim who steps or is placed clear of support. The victim descends at a safe rate of speed and as he descends, the sling on the other end of the rope ascends. This operation is continued until evacuation is complete.

Other Equipment

Other important items of equipment include the following:

Two sets of oxyacetylene cutting equipment: one portable Kerotest outfit carried on a heavy canvas vest, quickly put in service and easily carried to any location such as up ladders or into smoke-filled areas; one Airco-Davis portable outfit, much heavier, used on heavy work and to back up Kerotest. Steel up to 6 inches thick can thus be cut.

Two M.S.A. asbestos fire fighter protection suits, used when necessary to work close to or in flame or where quick extension of fire may trap men.

Four McCaa self-contained oxygen breathing apparatus which gives complete respiratory protection in any atmosphere.

Four each, rubber protection suits, rubber hoods and rubber gloves. When used with McCaa or airline mask, these give total body protection from any atmosphere.

Four Burrell All Service masks, a cannister-type mask depending on purification and filtration of surrounding air which cannot be used where there is oxygen deficiency.

Two electrical hot sticks which will handle up to 23,000 volts. Two pairs of rubber gloves for electrical work good for 10,000 volts. One Hayes life gun, used to shoot rescue line.

One Voleska bar cutter and one 36-inch bolt cutter for cutting bars, bolts, cables, reinforcing steel. Eight jacks, two 35-ton, two 2-ton, two 7½-ton and 2 Wee jacks—all used in lifting or spreading objects. Wee jacks employed on light work have detachable extensions and can be used either for

extension or compression.

Five H-H inhalators used to supply oxygen or a mixture of 10 percent carbondioxide and 90 percent oxygen to a victim who may need respiratory aid as result of accidental or intentional injury or disease, as in drownings, asphyxiation, shock, heart attacks.

One E & J resuscitator, which mechanically reinduces respiration. It is also used as inhalator and aspirator, the latter drawing mucus and liquid from throat and mouth.

Two sets of arm, leg, and body splints; 4 Thomas and 2 Murry traction splints for legs and arms. Two first-aid kits with supplies to handle any type of injury. Three invalid bags used to carry persons from difficult locations, such as lowering from roofs or raising from sewers. They are also used to confine violent cases.

A 20-foot extension ladder, two 10-foot collapsible ladders, 30-foot rope (Jacobs) ladder. These collapsible ladders are light and quickly put in use. The rope ladder is used in sewers and under water.

M.S.A. Explosimeter, used to test atmosphere for explosive gas mixtures. M.S.A. Wolf lamp used to test atmospheres for oxygen deficiency, flammable and explosive gases. Electric current generator (Homelite) used to supply 150 and 250-watt floodlights.

Besides this special equipment there is carried a large selection of ropes, block-and-tackle, hose hoists, sledge-hammers, axes, chisels, wrench sets, refrigerator tools, large and small picks, spades and trench shovels, grappling hooks, tin snips, crow-bars, diving weights, bathing suits, hand saws, hack saws, keyhole saws, drills, gas-valve keys, extra mask and inhalator supplies, stretchers, blankets, steel spoon for removing children's feet from piping and fire extinguishers.

The rescue company is always in contact with the Fire Tower by two-way radio.

The Equipment in Action

A review of past emergencies may illustrate the use of some equipment.

In a fire in the basement and sub-basement of a laundry, heat and smoke prevented entrance. Air movers were put to work injecting outside air into basement entrance. Men wearing Burrell masks and dragging hoseline entered and extinguished a large area of fire. Paving breakers with 5-inch chisel bits were used in first floor to open double wood flooring for entrance of hose lines. An air-saw made large opening for ventilation of basement.

At another tenement basement fire, a large gas line was broken and burning fiercely. The street valve had frozen. Paving breakers and clay digger broke through double concrete and flagstone sidewalk and hard clay. The stop was uncovered and the gas shut off before arrival of the utilities crews.

On numerous severe ammonia leaks, rubber protection clothing with McCaa or airline masks were used until the leak was stopped. Air movers then quickly cleared the area.

At a fire in the false ceiling over a refrigerator room, cork and wood were giving off dense smoke, the heat preventing entrance at a cubby hole. Air movers were used to draw off heat and smoke while entrance with hose line was made by a man wearing airline mask. The fire was extinguished and the area cleared in a short time. Air-hammers drilled holes in the ceiling from below to allow drainage of water. Air-saw was used on the ceiling to make entrance to inaccessible part of involved area.

A man was lying on high-voltage wire. Electric hot sticks and rubber gloves removed him. A man was found with paralysis of breathing muscles. E & J Resuscitator was used to replace natural breathing until paralysis was relieved. A woman had a heart attack. H-H inhalator supplied the needed oxygen. A large amount of fluid developing in air passages was greatly complicating the condition. The E & J resuscitator was used as "aspirator" to remove the fluid; breathing stopped and the E & J was switched to "resuscitator' to carry on breathing until natural condition was restored. The victim revived and regained health.

Five youths were pinned in an automobile which had run under a railroad caboose. We used 35-ton jacks to raise caboose, and Kerotest cutting outfit to remove auto door. The Wee jack was inserted from auto top to caboose rail to pull top forward and up; the other Wee jack was used between floor boards and dash-board to push dash up from victims. Crow-bars were used to spring body frame. Saws and chisels removed seat-back so that victims could be drawn out through turtleback. Splints and other first-aid supplies were employed on victims either before removal or after.

At a fire in a heavily locked and barred storage building, axes, bars and sledges would not force entrance. Kerotest cutting outfit cut steel bars and entrance was then made in less than one minute.

For drowning in a lake, a rope ladder was cast over the side of the boat; 300 feet of air hose ran to a reduction gage in the boat where a tender regulated the air pressure and cared for the driver's air hose and life line. Members of the divers company wearing diving weights and a Morse No. 15 airline mask, descended ladder and searched on lake bottom in depths up to 30 feet under air pressure of 25 pounds, working for periods of one hour each. The body was located and brought to shore after extensive search.

Many Emergency Uses

These are only a few examples of the use of this equipment. In the year of 1943, nearly 2,300 runs were made by both units: 800 by the rescue unit and 1,500 by the ambulance unit. These runs included many types of emergencies such as persons pinned in machinery, under street cars and railroad trains, in wrecked vehicles and in cave-ins, asphyxiation by various gases, suicides and attempted suicides, poison cases, burns, elevator accidents, falls from heights, electric shocks, drownings, sudden and severe illnesses, injuries with severe bleeding, various types of gas leaking in industrial plants, unusual conditions encountered at fires, bone fractures and other injuries, gunshot wounds and stabbings — a total of 135 different types of emergency runs.

Importance of Fire Retardants

WHILE safety to life in theatres depends to a large extent on their construction, fire equipment, and arrangement of egress facilities, the fire department inspection service plays a most important part in the maintenance of such facilities and in the general operation of the theatre to keep it reasonably safe.

Flameproofing, for instance, is of value in preventing the start of a fire rather than in retarding its spread once it is well under way, and too much dependence should not be placed on its effectiveness, particularly where the amount of combustible material is large. The better fireproofing treatments provide good resistance to ignition from many of the common causes—matches, cigarette butts, hot carbons, and unprotected sources of heat such as lamps and other devices.

Inspection work in theatres falls primarily into two divisions, that which should be done daily while an audience is in attendance and that, including a test of all fire equipment, safety devices, and flame test of decorations, which should be made at regular intervals. All incoming scenery should be tested before its use is permitted.

GEORGE W. BOOTH
Chief Engineer, National Board of Fire Underwriters, New York

Indiana Firemen See Fire Retardant Coating Tested

By BERNARD A. LYNCH
Fire Prevention Chief
Indianapolis Fire Department

AT Stout Field in Indianapolis June 14, a severe demonstration established the effectiveness of a fire retardant coating on wood. It was at the fire college conducted at Purdue University Extension for 150 members of local fire departments and plant fire officials.

Fuel used inside each structure consisted of 4 pounds of a mixture of 25 percent gasoline and 70 percent No. 2 fuel oil divided between two pans as shown in Plate 1. An additional 2 pounds of oil was poured over the back of each structure.

A series of pictures was taken at ½-minute intervals up to and including 6 minutes; at 1 minute intervals from 6 to 10 minutes; and at 12, 14, and 16 minutes, when the fire was over.

Plate 1. 0 Minutes

Plate 2. 2½ Minutes

Plate 3. 5 Minutes

Plate 4. 7 Minutes

Plate 1—Chief Lynch lighting the exposing fire in the treated structure.

Plate 2—at 2½ minutes. The first burst of primary combustion has completely filled with flame the untreated structure; while the coating material is holding back combustion. At 3 minutes, the fuel pans in the treated structure were ruptured by the intense heat permitting the oil to flow out so that instead of having 160 square inches of oil surface, there were 10 square feet of oil surface burning. This caused a tremendous oil fire in the treated structure clearly seen in Plate 3, where the flames of the oil fire can be seen extending 6 feet above the top of the structure. Within 2 minutes the oil had consumed itself and the fire in the treated structure was practically out as seen in Plate 4. This plate also illustrates the phenomenon of primary and secondary combustion.

Plate 3—shows the untreated structure filled with flame. At 6 minutes the flame in the untreated structure had died down materially, so that it was confined practically to the floor section of the structure.

Plate 4—shows the start of the secondary combustion.

Plate 5—shows the increase within 1 minute of secondary combustion in the untreated structure, while the 3 white dots on the floor of the treated structure are the only evidence of combustion left in this structure.

Plate 6—with the structure rapidly going to destruction; no fire left in the treated structure.

Plate 7—shows untreated structure collapsed and burning on the ground; no change in treated structure.

Plate 8—Chief Lynch and Captain O'Donnell making an examination of the treated structure. Harry H. Fulmer, Chief of the Indianapolis Fire Department, assigned Bernard A. Lynch, Chief of Fire Prevention, to assist in this demonstration.

One of the principal points of interest was the amount of actual destruction that had taken place in the treated structure. To determine this, the blister formation of the fire-retardant material was cut away on both side panels and the 2" x 4" rafters. It was found that there was only a scant 1/16-inch of char under the blister formation and no material weakening of the structural strength of any of the members.

Ordinarily in such tests only the minimum amount of fuel is used. In many laboratory tests, where this type of structure is used, only 1½ pounds of fuel is considered necessary to provide sufficient exposure. In this demonstration four times this amount of fuel was used, but it wasn't expected that the fuel pans would rupture and release all the fuel at one time.

Plate 5. 8 Minutes

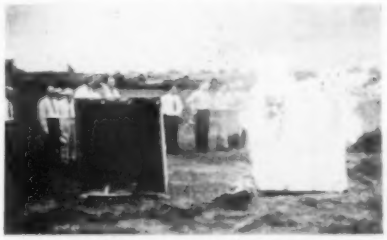


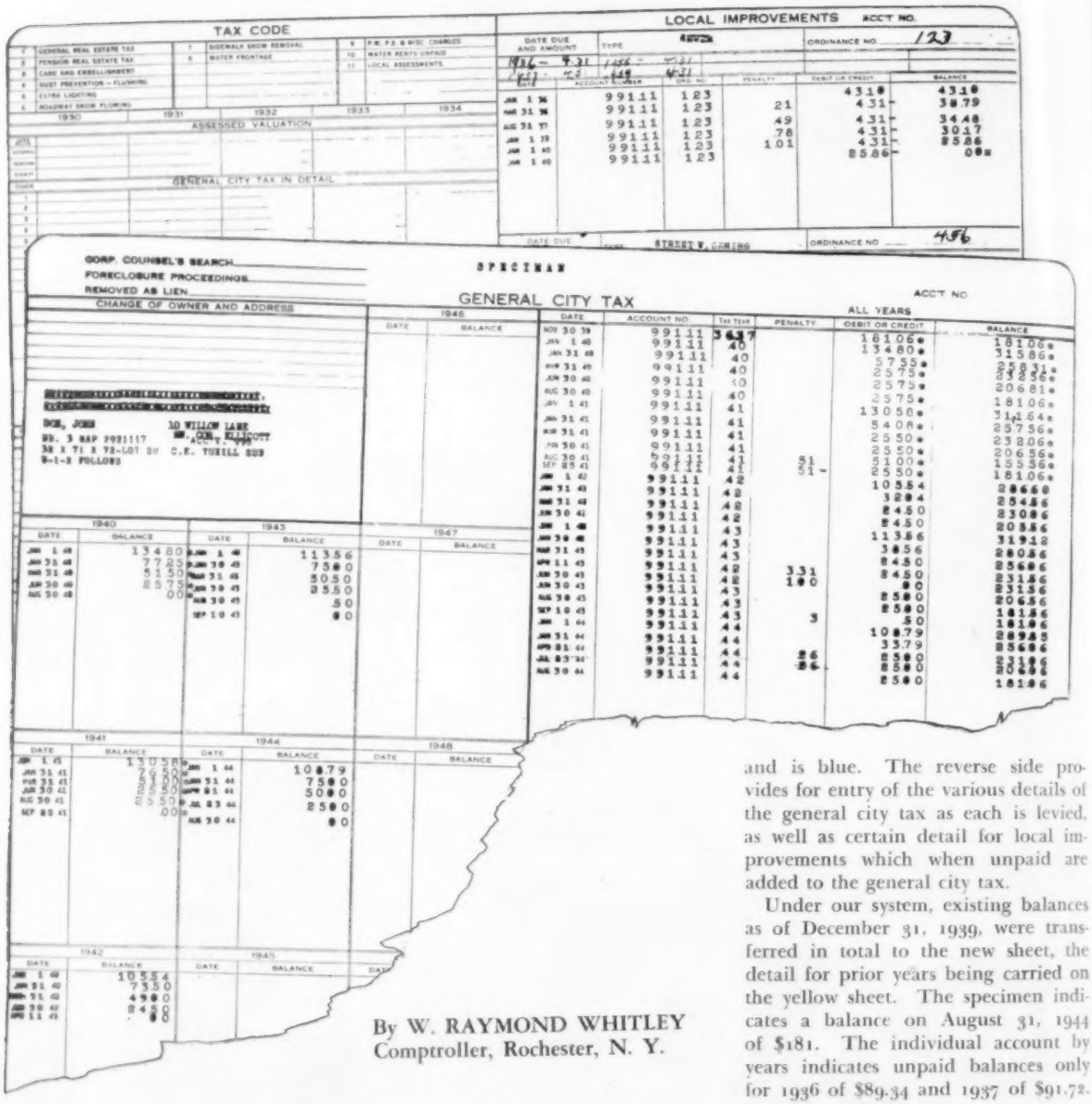
Plate 6. 10 Minutes

Plate 7. 16 Minutes

Plate 8. Final examination

* Announcement has reached us of the death on September 1 of Chief Lynch, author of this article.

Eight Years with Unit Tax Cards



By W. RAYMOND WHITLEY
Comptroller, Rochester, N. Y.

OUR unit tax ledger system was installed in 1936. Prior to that year, our tax accounting was in the usual form of a tax roll for each year. One important advantage of our new system, which we operate through the use of the Underwood Elliott Fisher Sundstrand accounting machine, is that we have an account for each property indicating the complete tax picture for all years. Under the old system, it was necessary in order to prepare a tax search to analyze the tax roll for the current year and all prior years, or to keep a memorandum record such as the individual account in addition to the regular tax roll.

Our present system provides for a tax roll each year which is the basis for posting the tax debits to the unit tax ledger. Thereafter, the unit tax ledger is operated for the purpose of tax accounting and the tax roll is simply held for reference.

Shown here are two 14 x 15 inch cards or sheets, each providing for a detailed record of transactions of a typical tax account over a period of 10 years. The under card (yellow) is for 1930-39. The top card is for 1940-49 and is blue. The reverse side provides for entry of the various details of the general city tax as each is levied, as well as certain detail for local improvements which when unpaid are added to the general city tax.

Under our system, existing balances as of December 31, 1939, were transferred in total to the new sheet, the detail for prior years being carried on the yellow sheet. The specimen indicates a balance on August 31, 1944 of $181. The individual account by years indicates unpaid balances only for 1936 of $89.34 and 1937 of $91.72.

Big Bonds Issues Voted for Post-War Public Works

St. Louis and Portland have recently voted substantial funds for post-war public works. In St. Louis $43,527,000 approved in the August primary, added to other funds available, will provide $63,500,000 for 16 projects. These are expected to provide an estimated 23,100,000 manhours for discharged war workers and returning veterans.

In Portland three bond issues and a special tax levy will provide $24,000,000 for post-war projects.

New Federal Actions Affecting Cities

(*Concluded from page 5*)

given (and a copy of such notice given to the Board at the beginning of such thirty-day period) and an attempt has been made within such thirty days to dispose of such property otherwise than by destruction.

(c) No airport and no harbor or port terminal, including necessary operating equipment, shall be otherwise disposed of until it has first been offered, under regulations to be prescribed by the Board, for sale or lease to the State, political subdivision thereof, and any municipality, in which it is situated, and to all municipalities in the vicinity thereof.

(d) Whenever any State or political subdivision thereof, or any State or Government agency or instrumentality certifies to the Board that any power transmission line determined to be surplus property under the provisions of this Act is needful for or adaptable to the requirements of any public or cooperative power project, such line and the right-of-way acquired for its construction shall not be sold, leased for more than one year, or otherwise disposed of, except as provided in section 12 or this section, unless specifically authorized by Act of Congress.

(e) In disposing of any surplus real property, as defined in section 23, on or across which highways or streets had been established and constructed and were being maintained by the States or their political subdivisions or instrumentalities at the time such surplus real property was acquired by the Government, and where such highways or streets were vacated, destroyed, or shut off from general public use in order to meet the requirements and serve the purposes of the Government, the States or their political subdivisions or instrumentalities first shall be given a reasonable time, to be fixed by the Board, in which to repurchase the original rights-of-way on which such highways or streets were established and in which to purchase such new or additional rights-of-way as may be required for re-establishing, in whole or in part, such highways or streets of greater width or on new and more adequate locations, at a price not exceeding that paid therefor by the Government.

(f) The disposal of surplus property under this section to States and political subdivisions and instrumentalities thereof shall be given priority over all other disposals of property provided for in this Act except transfers under section 12.

Section 12 of the measure gives first priority to Federal Agencies.

The above provisions are self-explanatory. Interpretations of the law will turn out to be controlling and the Board of 3 members, created under the statute, can make or break the disposal program insofar as effective participation of public agencies is concerned.

It is hoped that at least one of the Board members to be appointed will have had some experience in governmental buying.

Senate Approves Post-War Highway Program

On September 15, the Senate passed S. 2105—a Post-War Highway Bill. As approved by the Senate, the legislation authorizes 450 millions annually for each of the 3 post-war years. Of this amount, 200 millions is earmarked for projects on the federal-aid system (both inside and outside cities); 125 millions for projects within cities; and 125 millions for rural roads. The federal appropriation is to be matched by the states on a 50-50 basis, and the funds specifically earmarked for urban projects are to be apportioned by *population* instead of the old, archaic population, area and post-road mileage factors. Unfortunately, the Senate, in approving the bill, struck out the provision whereby federal funds could be used for purchasing land for rights-of-way. Since land acquisition is a major item of highway construction costs in municipal areas, it is to be hoped that when the House considers its companion bill (H.R. 4915—reported last June by the House Committee on Roads, and now on the House Calendar), it will insist that costs of rights-of-way are provided for. Otherwise, there is great danger that the proposed program, insofar as cities are concerned, will prove to be unworkable.

The House Bill authorizes an appropriation of 500 millions for each of the 3 post-war years divided as follows: 225 millions for projects on the federal-aid system 125 millions for rural roads; and 150 millions for projects in urban areas on the federal-aid system. Matching is to be on a 60 federal-40 state basis the first year, and on a 50-50 basis thereafter. The apportionment formula in the House Bill is ½ population, ¼ area and ¼ post road mileage.

Efforts will be made to bring up the House Bill for consideration in November and thus secure final Congressional action at the present session. This action is necessary due to the fact that over 40 state legislatures will meet this winter, and in many cases supplemental state legislation is required.

War Memorials That Further Practical Democracy

(*Concluded from page 75*)

ation warns: "Too many war memorials were established after the last war by enthusiastic communities without adequate consideration of the need for continuing financial support for the maintenance of the building and the operation of the program centered in the building."

Multiple-Use Memorial Centers

But when a community has considered all these questions and is prepared to create and maintain a living memorial as a means of continuing the work of liberation begun on the battlefield, these suggestions from the Federal Security Agency may well serve as a useful point of departure:

"*Multiple-Use Memorial Centers* should be designed to serve varied recreational interests—social, athletic, hobby, and cultural. They should contain diversified spaces suitable for a well-rounded program for all age groups. They should be centrally located, if possible at or adjoining a playfield. Such an arrangement makes possible a combined indoor-outdoor recreation center, and makes for efficiency of service, and economy of operation. Multiple-use memorial centers should provide most of these facilities:

1. Gymnasium, with seats for spectators, lockers and showers, suitable for basketball, volleyball, and other floor games; dances and social activities
2. An assembly hall or auditorium with stage, and preferably with removable seats, suitable for concerts, lectures, movies, dramatics, and community gatherings
3. Rooms for informal reading, table games, arts and crafts, small group parties, committee meetings
4. Refreshment stand or snack bar
5. Kitchen for preparing meals and refreshments, and for classes
6. Office space
7. Essential service rooms and facilities including ample storage space for equipment and supplies

In all instances memorial tablets and inscriptions should form an integral part of the plan, installed to be removable, in case the building should be remodelled or replaced.

While the auditorium and the community center seem, from the recent survey of THE AMERICAN CITY, to be the prevailing preferences among "Living Memorials," each community will find its own type of memorial and these will undoubtedly be widely diversified. We may expect memorial libraries, hospitals, schools, fountains, pools, baseball fields, chimes, gardens, parks, trees, bookmobiles, scholarships. The main thing is for a community to define its purpose in choosing a memorial and to select the facility which in its own locale will best promote that end.

This article is based on information obtained from a recent survey by THE AMERICAN CITY. See also THE AMERICAN CITY for January 1944, pp. 35-36; and June 1944, pp. 113-115, for additional articles on war Memorials; and pamphlets and reports issued by the National Recreation Association, 315 Fourth Ave., New York; Chamber of Commerce of the United States, Washington, D. C.; American Legion, Indianapolis, Ind.; and Federal Security Agency, Washington, D. C.

PRESENT VIOLATION OF NATURE'S "PRINCIPLE OF ORGANIZATION"

(Areas of "Scarcity", Restriction, and Poor Circulation)

"Spotty", inefficient production and exchange of goods and services due to inflationary and "investment held" land prices KEEPS IDLE MUCH GOOD LAND IN AND NEAR THOUSANDS OF TRADING AND COMMUNITY CENTERS IN THE U. S. A.

FUTURE CONFORMITY WITH NATURE'S "PRINCIPLE OF ORGANIZATION"

(Areas of Full Production and Full Distribution)

With inflation in Land Values removed, ALL LAND AROUND A CITY WILL BE USED TO THE FULLEST EXTENT according to local suitability. "Nature's Principle of Organization" will bring an equitably distributed peace-time production (and consumption) of about 75% above pre-war standards.

Access to Land and Access to Jobs

A Fundamental Re-Employment Proposal

IF adopted generally, a plan now under consideration by the New Orleans Association of Commerce Committee on Re-employment of Returning Military and Naval Personnel could, in the opinion of the Benjamin Franklin Research Society of that city, meet fully the need for post-war jobs.

This plan recognizes—as most post-war employment plans fail to do—the fundamental relationship between access to land and access to jobs, and between the problems of the city and those of its adjacent suburban and rural areas. To quote, in part:

"The present unbalanced condition due to unused and high priced land, divorces men from the soil, herds them into the cities, causing inefficiency, confusion, and eventual unemployment. Initiative is stifled, and costs raised to all. The illustration which follows outlines the principle of 'wheel' organization, and pictures vividly our faulty use of the land in and around each Community Trading Area, or 'hub' center. The present situation makes it difficult for workers and capital to adjust their economic status through the lack of opportunities that would exist in a freely circulating community, organized in accordance with the foregoing suggestions.

"Hundreds of millions of acres of arable land, much of it bought at low prices, are not paying their just proportion of the community expense because (unknowingly as to damage done) they are held for 'investment purposes' or inflationary asking prices, or only partially developed, or not used at all. With these inflation barriers removed, these lands could be brought into cultivation, or put to other efficient and natural use, to find their correct economic position in the thousands of 'community wheels' that will thus function to save America in the emergency which she inevitably faces.

"Our civilization and present productiveness was brought about largely by an increasing knowledge and use of the wheel, a form of lever by which man has magnified his strength many thousandfold; a perfect example of balance, equalized stresses and strains, proportional strength, and employment of all matter composing each unit. We must now, in defense of society, turn this same wheel knowledge to the improvement of our economic position.

"Assuming the 'city' or community to be the hub of a wheel, we see at a glance what the result must be, from the contrasting applications pictured below.

"Our difficulties lie in not having kept open the paths of the expanding and supporting 'spokes'—as it refers to the supporting areas around cities, and utilizing the principle of the all necessary 'wheel' in our social structure and trading centers. The crisis we now face is the result of these past errors, it being a fact that our social knowledge and the distributive economics of this great industrial era have lagged far behind the mechanical 'wheel' evolution. Our economic position is therefore weak and inefficient, and laboring under a great handicap; it is still in the slow moving, hard-to-pull sled stage instead of what should be a complete and efficient rhythmical wheel era."

Local Land-Use Clinics Proposed

In the opinion of the Benjamin Franklin Research Society, complete economic adjustment will come only by working in conjunction with Land-Use Committees, or Clinics, organized to cure present land ownership abuses.

"Assuming," says the Society's Proposal, "the desirability that all land in and around cities and trading communities must be used to the fullest possible extent according to local suitability, we must then as business men develop a program which will meet today's changing conditions and work together to convince our people that Land is a Public Utility. We cannot over-emphasize the fact that our God-given Natural Land Resources and their full use makes possible a better balance in the coming economy, and highlights the combined opportunities to be had in conjunction with investment in buildings, tools, and other forms of man-created wealth. . . . In the last analysis, local people forming a wheel center, know the needs of their own people better than anyone else. When the significance of this 'wheel' idea becomes better undersood, the problems relating to future betterment and the peacetime crisis, which now confronts us, will be more easily solved, and our home people will eagerly promote this proposed full employment of all resources and all potential manpower."

EDITORIAL NOTE: In the Proposal from which the foregoing excerpts are quoted, the private ownership and operation of natural resources is strongly advocated; and the opinion is expressed that: "The simplest anti-inflation and land-use method is that proposed by the late Francis I. DuPont, of Wilmington, Del.; i.e., a regulation forbidding any owner of land (who became an owner after the requirement went into effect) from selling the land at a price higher than paid for it. This would stop further inflation and gradually squeeze out that now existing. Improvements would be sold at cost to replace, less depreciation. This 'ceiling' idea squares well with our other War II methods to prevent inflation, and its application to land values would reach and eradicate the root cause of all inflation."

While not endorsing the practicability of this particular method of land-price control, THE AMERICAN CITY believes that this 10-page mimeographed proposal of the Benjamin Franklin Research Society merits the careful study of public officials, economists, and political scientists. A limited number of copies of the Proposal are available for free distribution on application to William E. Clement, the Society's secretary, at 511 Gravier St., New Orleans, La.

Tabulating Equipment Can Save Cities Five Times the Cost

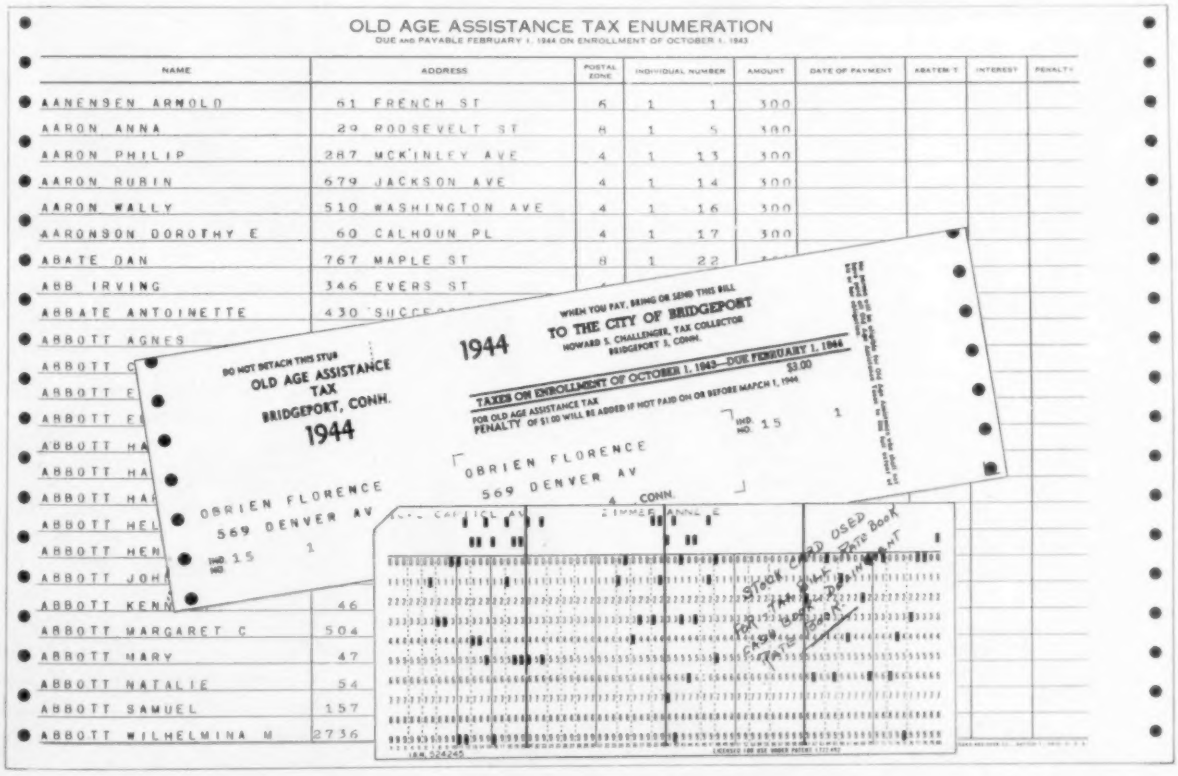
By PERRY W. RODMAN
City Comptroller
Bridgeport, Conn.

This is the first of a series of articles in which the author will show the correct applications and methods for successful use of tabulating machines in municipal accounting, and for which Mr. Rodman was given the Louisville Award of the Municipal Finance Officers' Association this year.

THERE is no question in my mind that most of the accounting procedures of the future will be performed by tabulating equipment, where the volume is great enough to warrant its use. Where cities have used tabulating machines and then discontinued them, the reason has usually been that the machines were not given enough work to do; they were employed on a single accounting job. This is the first and most common mistake in the employment of these machines of enormous speed. A second mistake is the attempt to couple tabulating machines with other types of accounting equipment except in special instances, in an effort to make the several types into an integral unit.

Bridgeport, Conn., has a normal population of 150,000 (147,221 according to the census of 1940). In this war year we have 197,000. It was obvious from the beginning that a proper installation of tabulating equipment could do many of the routine, sometimes highly complicated, jobs of municipal accounting. Real study showed that we must not merely buy accounting machines to do some of the work, but that we must put into operation a new policy of municipal accounting procedure. The jobs which will be described in future articles will develop what I mean. It did boil itself down to this, however, and I find that it is pertinent also in other cities where the use of tabulating machinery is contemplated, we would have to resign ourselves to dispensing with personnel. This was comparatively easy in Brdigeport, because politics play a very small part in our city operation. This, however, is a big hurdle in quite a few places.

The first job was the setting up of an account for Old Age Assistance. This involved the handling of many thousands of items, since it had to do with the Old Age Assistance tax which is levied on every person between the ages of 21 and 61. It was logical that other jobs should be assigned to the machines in rapid order. At no time has the personnel of our tabulating division exceeded ten persons, yet each of a number of the jobs handled would have required the services of five times that number if done by hand. It is my considered opinion that the use of tabulating machines has saved the city at least five times their annual cost.



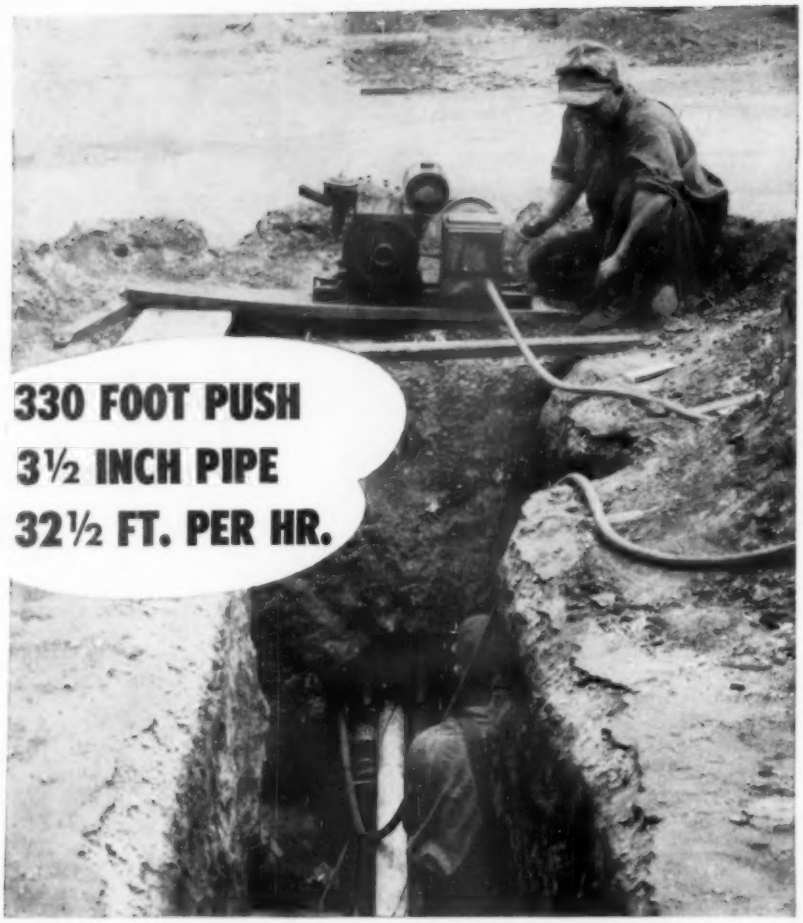
OLD AGE ASSISTANCE TAX ENUMERATION
DUE AND PAYABLE FEBRUARY 1, 1944 ON ENROLLMENT OF OCTOBER 1, 1943

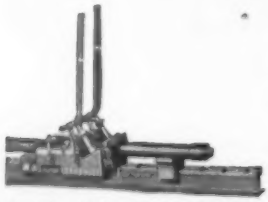
NAME	ADDRESS	POSTAL ZONE	INDIVIDUAL NUMBER	AMOUNT	DATE OF PAYMENT	ABATEMENT	INTEREST	PENALTY
AANENSEN ARNOLD	61 FRENCH ST	6	1 1	3 00				
AARON ANNA	29 ROOSEVELT ST	8	1 5	3 00				
AARON PHILIP	287 MCKINLEY AVE	4	1 13	3 00				
AARON RUBIN	679 JACKSON AVE	4	1 14	3 00				
AARON WALLY	510 WASHINGTON AVE	4	1 16	3 00				
AARONSON DOROTHY E	60 CALHOUN PL	4	1 17	3 00				
ABATE DAN	767 MAPLE ST	8	1 22					
ABB IRVING	346 EVERS ST							
ABBATE ANTOINETTE	430 SUCCESS							
ABBOTT AGNES								
ABBOTT C								
ABBOTT E								
ABBOTT F								
ABBOTT HA								
ABBOTT HA								
ABBOTT HA								
ABBOTT HEL								
ABBOTT HEN								
ABBOTT JOH								
ABBOTT KENN	46							
ABBOTT MARGARET C	504							
ABBOTT MARY	47							
ABBOTT NATALIE	54							
ABBOTT SAMUEL	157							
ABBOTT WILHELMINA M	2736							

DO NOT DETACH THIS STUB
OLD AGE ASSISTANCE TAX
BRIDGEPORT, CONN.
1944
OBRIEN FLORENCE
569 DENVER AV
IND. NO. 15 1

WHEN YOU PAY, BRING OR SEND THIS BILL
1944
TO THE CITY OF BRIDGEPORT
HOWARD S. CHALLENGER, TAX COLLECTOR
BRIDGEPORT 3, CONN.
TAXES ON ENROLLMENT OF OCTOBER 1, 1943—DUE FEBRUARY 1, 1944
FOR OLD AGE ASSISTANCE TAX $3.00
PENALTY OF $1.00 WILL BE ADDED IF NOT PAID ON OR BEFORE MARCH 1, 1944
IND. NO. 15 1
OBRIEN FLORENCE
569 DENVER AV
4 CONN.

Old age tax roll and old age assistance tax check issued by tabulating equipment. This is one of 40 similar clerical jobs performed for the city by means of such equipment.





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POWER — pushing pressures range from 6,500 to 40,000 pounds.

EASE—one or two men can easily develop needed pressure. Hydraulic unit does actual pushing.

PORTABILITY — total weight, 140 pounds . . . ONE compact unit, easy to carry and set up.

SPEED — operates at 6 different speeds to match varying soil conditions.

ECONOMY—eliminates cost of extensive digging, requires fewer man-hours.

TWO MODELS—(1) for up to 4-inch pipe; (2) for large drainage ducts, concrete sewer pipe, etc. beyond 4 inch.

"On-the-job" with a GREENLEE No. 790 Hydraulic Pipe Pusher, equipped with power pump . . . pushing 3½ inch pipe a distance of 330 feet . . . at the rate of 6½ inches per minute! That's fast pipe pushing!

Use Greenlee Pipe Pushers to install pipe for gas, electricity, water, sewers and telephone cable under concrete pavements and railroad tracks . . . without disrupting normal traffic. Save valuable labor hours and cut costs. Eliminate extensive trenching (just a short trench to accommodate pusher). And there's no tearing up of pavements and lawns, no backfilling, no repaving.

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GREENLEE

FOR THE CRAFTSMAN

CIRCUL-AIR

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Saves

1. hose
2. drying time
3. storage space

Just a few hours and the hose is dry and ready for use again . . . and *that quick drying* prevents mildew and rot so *your hose lasts longer.*

The whole operation is so simple and troublefree (as well as space-saving) that you will wonder why you were ever content to get along without one of these Dryers! *How fast?*—From 25 to 50 times as fast as drying the hose in a tower or rack.

IMMEDIATE DELIVERY. WRITE:

The Circul-Air Corp.

6339 East Palmer Ave.
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..for Better Traffic Control

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Traffic handling today is a 24-hour-a-day job for highway signs and markers. Be sure that the signs in your locality are visible both day and night! For low-cost illumination when you need it—use Cataphote Reflector Buttons! Advanced design meets strictest specifications. No moisture condenses...no yellowing with age... brilliance guaranteed 3 years. Write concerning your requirements.

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CATAPHOTE CORPORATION
TOLEDO, OHIO

How the U. S. S. R. Is Modernizing Its Cities

By VLADIMIR SEMENOV
Director, Town Planning Institute
Academy of Architecture, Moscow

HISTORY tells us of a number of epochs when towns have grown up like mushrooms and have been newly built, rebuilt or reconstructed. These epochs of town building usually coincided with profound historical changes in the lives of nations.

Our country, if we consider only the modern period, experienced such an epoch in the eighteenth century, when new towns—industrial, administrative, and cultural centers—were built in all parts of the country, following the reforms of Peter the Great and the rapid strengthening of state power in Russia. The history of Russian architecture in this epoch is marked by the building of St. Petersburg, founded as the new capital on territory that was formerly a wilderness and which in a short time developed into one of the world's finest cities. In building St. Petersburg, eighteenth century architecture set a splendid example of town planning, with well-planned squares, streets and embankments. During this epoch many new Russian towns were founded and built according to definite architectural plans—Odessa, Yakatérineslav (now Dniepropetrovsk), and many others.

None of these past epochs, however, can in any way compare with the large scale town building which took place in our country for 10 or 15 years before the outbreak of the present war. The industrialization of the Soviet Union led to the foundation of new towns and a large number of industrial settlements. Old towns were so radically rebuilt that one may say they were newly built. Many towns sprang up in places that were formerly uninhabited. Old oriental communities in Soviet Central Asia and the Transcaucasus became modern well-built cities. This epoch truly deserved its name "Epoch of great works"—a fine school for modern town builders.

As the subsistence level of the people was raised during the realization of the Five-Year Plan for reconstruction of the national economy, fresh demands were made of architects and town builders. New towns and industrial settlements in the Urals, Donets Valley coal fields,, Siberian industrial regions, the Ukraine and many other parts of the country had not only satisfied the immediate needs of the inhabitants, but had also maintained high architectural standards.

Heritage and Technics

Modern town builders do not disregard questions of art. On the contrary, beauty of town, beauty of residential quarters, and industrial settlement are considered necessary conditions for correct and progressive planning. Architects who are also town planners must make a profound and detailed study of the national culture of the people concerned and the peculiarities of local landscape. They must completely master the treasures of ancient architecture and have a good knowledge of its best traditions.

Modern town planning can only develop satisfactorily if it does not ignore the valuable cultural heritage.

The reconstruction of Moscow, which was being carried out rapidly in the pre-war days, enabled us to test a number of principles of modern town planning in actual practice. We boldly planned new streets, widened and rebuilt old streets, at the same time retaining the old plan of circular belt streets around the city with radial arteries from the center. To effect this we relocated the more valuable of the old buildings; in some cases tall buildings of many stories were moved intact for dozens of yards. The Moscow embankments were completely rebuilt and huge new bridges thrown across the river. The Moscow underground railway, built in a very short time, is not only a fine example of modern transport as to technical design and equipment, but also an original archtectural ensemble of which each station is a complete and finished unit. The fact that the stations of the underground railway—the transport facility most used by the masses of the people—were built according to artistic designs that employ valuable marbles, sculptures, paintings, etc., is very characteristic of Soviet architecture. The same may be said of the canal which joins the Moskva and Volga rivers.

Even the tremendous scale of town building undertaken in the U.S.S.R. during the past decade cannot be compared to the task that faces us in the future. The enemy destroyed dozens of big cities, smaller towns, and thousands of industrial settlements and villages. The devastation has no precedent in history; as they retreated, the Germans blew up or burnt whole sections of towns without sparing a single house. Everybody knows that heroic Stalingrad was completely ruined. There are similar ruins in Novorossiisk, Voronezh, Smolensk, Chernigov, and many other cities. I was recently at Rostov on the Don river, one of the biggest industrial and trading centers in south Russia. We were astounded at the senseless destruction and deliberate systematic arson.

Certain changes in the general planning of Rostov are now possible including provision for a central square commensurate with the city's importance, and other basic needs.

Eric Johnston in Russia

"One evening I and my two traveling companions were guests at a dinner given by Mayor Popkov of Leningrad. . . . During the evening the mayor displayed not only his hospitality but his deep understanding of human psychology. In the darkest hour of the siege he had an idea. The architects, creative designers and constructive thinkers of Leningrad were called into conference. Beautiful Leningrad was being destroyed. How could it be rebuilt into a more amazing city in the world of tomorrow? Prizes and medals were offered for the best designs. Competition was started between districts. Huge drawings and blueprints began to appear on the bulletin board of factories and in the headquarters of regimental commands. City squares were to be enlarged and made more serviceable. New highways were to radiate from these squares like spokes from a hub. New bridges were to span the Neva River. New paintings were to adorn municipal buildings. An architectural and cultural renaissance was to follow the conflict. Hence every soldier, which meant every person in Leningrad, was not only fighting for the battered city of today. All were fighting in an epic struggle for the Leningrad that would arise tomorrow. It worked.

"'The plan for the new Leningrad,' said Mayor Popkov, 'was better than any medicine that could have been flown into our besieged city. It diverted human energy from the thought of grief to the prospects of grandeur. It shifted mental outlook from the destruction of today to the reconstruction of tomorrow. . . . The mental and physical processes of man work better when building than when destroying.'"—*Life*, September 11, 1944.

FMC HIGH PRESSURE FOG PROVED IN ACTUAL FIRE FIGHTING

PROPERTY ACTUALLY ON FIRE SAVED BY KENT COUNTY FIRE DEPT. $226,985.00

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GASOLINE FIRES

TRUCK COLLISION FIRES

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RURAL DWELLING FIRES

Fire Losses Reduced 'Way Below Average by FMC High-Pressure Fire Trucks in Kent County, Michigan

Look at the record! In the past year the Kent County organization made 201 rural runs with FMC High-Pressure Fog Fire Fighters. Property on fire saved—$226,985.00—besides the thousands of dollars of exposed property saved. Total losses just 11—only a fraction of the rural average.

The report shows, beyond the question of a doubt, that a volunteer fire organization — equipped with FMC High-Pressure Fog Fire Fighters — can handle all types of fires.

It's the 600 lb. gun pressure! FMC High Velocity and Finely Atomized Water! Just what you need to *blast, cool* and *smother* flame!

One gallon of this finely-atomized water fog, properly used, has the fire-quenching possibilities of many times that of low-pressure water. But remember — *only* the FMC High-Pressure Fog Fire Fighter packs the needed punch to produce and maintain 800 lbs. pump pressure — 600 lbs. nozzle pressure. No experimenting to be done by you because of unproved new ideas.

Get the facts about this new and revolutionary fire-fighting technique. Get ready to modernize — now!

FMC HIGH-PRESSURE FOG HANDLES ALL TYPES OF FIRES

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Docks	Oil Fires	Airport Hangars
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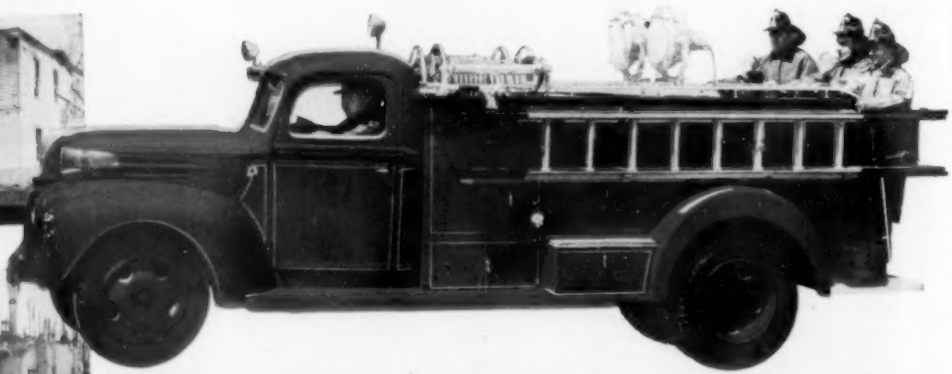
Grain Fields	Gas Stations	and many others

Insist upon 600 lbs. gun pressure to get the multiple efficiency with small amount of water and no water damage.

STANDARD FMC FOG FIRE FIGHTER. A self-contained fire-fighting unit. Carries its own water supply and complete fire-fighting equipment. Provides two guns of 30 gallons each at 600 lbs. nozzle pressure. These guns proven for years in actual fire fighting.



FMC Original HIGH-PRESSURE FOG FIRE FIGHTER

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BUILDERS OF BEAN HIGH-PRESSURE PUMPS FOR OVER 60 YEARS

Fire Alarm Service in Towns and Villages

A Municipal Responsibility

By A. C. HUTSON*

FIRE departments extinguish 75 to 90 percent of all fires with chemical extinguishers and booster lines. If one should ask why there was this variation between departments and why it was necessary to use other more powerful streams of water on some fires, there would be only one answer. That would be—"the fire had gained too great a headway by the time our first company arrived."

It is not the intent of this article to deal with the quick discovery of fire. There are several ways of providing for this quick discovery, such as watchmen, automatic alarm systems, and automatic sprinkler systems. These usually involve cost factors which are within the reach of the larger plants and stores.

The item of interest here is the question of providing more adequate service for the householder, the small store, and the usual industries found in villages and small towns, and in the rural areas near by. These places must depend largely upon volunteer fire companies, where the membership may be spread over a considerable area and response is necessarily delayed by the travel-time for all or some of the firemen to reach the fire station.

If to this there is an additional time delay brought about by the inability of the person who discovers the fire to transmit the alarm quickly, it is reasonable to assume that property losses and danger to persons will increase materially.

The telephone companies have been outstanding in their willingness to aid in every way possible in the handling of such emergency calls as those for a fire, but these same companies recognize that this service alone should not be depended upon. In fact, in their manufacturing plants and larger control offices they install fire-alarm systems.

Not all persons have telephone service, and at night, when the need of fire protection is greatest, it may be almost impossible to arouse those who may have this service, and in the areas occupied by stores or factories there may be no telephone available.

These villages and towns need outside sounding devices, which can be operated to call the members of the fire department. To provide for the manual operation of these is often difficult. Without them, and definite means of assuring their operation, there is a further delay in response.

The above introductory paragraphs are leading up to the meat of the matter, which is, that every village and town owes it to their citizens to provide a suitable fire alarm telegraph system, with public boxes at suitable location, and proper apparatus for the transmitting of call to the members of the fire department.

The idea seems to be rather general that these fire alarm facilities are only for the larger cities, and that their cost of installation and maintenance is beyond the ability of the smaller places to finance. In recent years there has been a simplification of the equipment necessary for such a system, with a reduction of cost. In addition, there are many people who have sufficient knowledge of electricity to permit them to test and maintain the system.

The question may arise as to whether these systems are fully standardized. They embody the fundamentals for dependable service and, although they may not have all the features desirable in a system for a city of metropolitan size, they do include features and functions not now found in many installations in service throughout the city.

No definite figures are available as to the cost of such a system suitable for a town or village needing 20 or 30 boxes, but such estimates as are available would indicate that this much needed protection would be little, if any, in excess of the purchase price of a fire department pumper and the hose carried by it.

*Assistant Chief Engineer, National Board of Fire Underwriters' Committee on Fire Prevention and Engineering Standards, New York, N. Y.

A Unique Service for Town and County Officials

An exceedingly valuable series of information and training extension bulletins is published monthly by the Town and County Officers Training School of the State of New York, in cooperation with the Association of Towns, the County Officers Association and the Bureau of Public Service Training of the New York State Department of Education. These include:

Highway Topics, a bulletin for town and county highway superintendents, edited by Earl J. Mattis, County Superintendent of Highways of the County of St. Lawrence.

Justice Court Topics, a bulletin for Justices of the Peace, edited by Alfred Morrison, Attorney-at-Law, Angola, N. Y.

Civil Service Topics, a bulletin for county civil service executives, edited by H. Eliot Kaplan, Executive Secretary, Civil Service Reform Association.

Town Clerk Topics, edited by Walter E. Lansing, Town Clerk of the Town of DeWitt.

Town and County Topics, a bulletin for supervisors and town councilmen, edited by Edward F. N. Uthe.

Town Welfare Topics, a bulletin for town and county welfare officers, edited by Ralph W. Witmer, Town Welfare Officer of the Town of Webster.

Assessors Topics, a bulletin for town assessors, edited by Edward F. N. Uthe.

Specimen copies of these bulletins may be secured from Edward F. N. Uthe, Executive Secretary, Association of Towns, Hotel Ten Eyck, Albany, N. Y.

Air Traffic Problems

(Concluded from page 93)

ing is still such a new and unfathomed realm of travel, we are not certain that the landing facilities we build today will be the type we will want twenty-five years from now—or ten, or even five.

Landing strips are ideal for the small town, where immediate requirements do not warrant an airport or where sites are not available. Landing strips are recommended for the residential sections of larger cities as auxiliaries to their municipal airports.

A landing strip can be laid out as a single straight strip or in the form of an L or a T, depending on its location. The L-shape and the T-shape strips as the most desirable, as they will allow planes to land against the wind from four different directions. The three types of inexpensive landing strips are sketched here.

GRAVER

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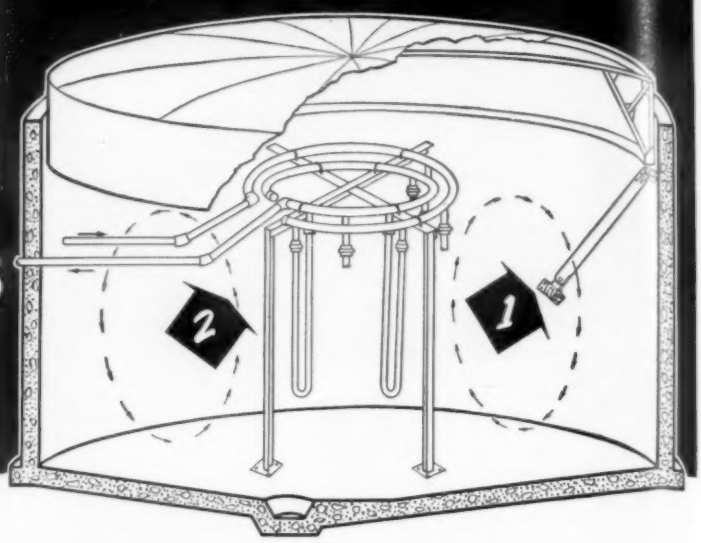
2 IMPORTANT IMPROVEMENTS IN DIGESTERS



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An entirely new method of support for the Digester cover which provides numerous advantages:

- **A.** Eliminates tilting and binding of cover.
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- **C.** Makes high lifts possible without superstructure or wind bracing.
- **D.** Provides greatly improved appearance.
- **E.** Insures lower construction and maintenance costs.

2

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A revolutionary improvement insuring maximum efficiency and economy.

- **F.** One man can remove heating element without draining digester.
- **G.** Provides uniform heating from top to bottom.
- **H.** Light, removable sections.
- **I.** Repairs can be made without drawing off sludge.
- **J.** Uses standard replacement parts.
- **K.** Counter current flow.
- **L.** Improved convection current circulation.

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Aerators — Chemical Treatment Plants — Clarifiers, Primary and Secondary — Coagulators — Digesters — Gas Holders — Rotary Distributors — Complete Sewage Treatment Plants

Municipal Law Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, Washington, D. C.
Charles S. Rhyne, *Executive Director*

Auction—Tax Sale—Oral Contract—Memorandum of Sale

Where plaintiff bid in certain property at a tax sale and the auctioneer had announced that all sales were subject to confirmation by the vendor city but plaintiff was given a memorandum of sales not including such condition, held that there could not be specific performance since the memorandum did not purport to be a contract and the oral contract would govern. *Taylor* v. *City of Haverhill*, 55 N. E. (2d) 617 (Mass. June 5, 1944).

Bonds—Collection of Installments—Payment to Holders of Different Series

In an action by the holder of certain improvement bonds to recover his pro rata share of the amount of assessment installments collected by the city, held that the city was liable although it had paid the money it had collected to the holders of other series of bonds issued under the improvement resolution. *City of Hammond* v. *Melville*, 52 N. E. (2d) 845 (Ind. App. Feb. 7, 1943). Just released for publication.

Bonds—Call Before Maturity—Failure to Provide for Interest

In an action to enjoin the call for payment before maturity of refunding bonds in which call no provision is made for paying one-half of the deferred interest as promised in the bonds, held that such a provision could not be severed from the provision making the bonds callable on any interest date, and if by Florida law the provision was void because not approved by popular election and was severable from the provision making the bonds callable before maturity, the holders could enforce payment as holders of like amount of refunded indebtedness plus the interest at the rate provided in the original bonds. *Meredith* v. *City of Winter Haven*, 141 Fed. (2d) 348 (U. S. C. C. A. 5th, Mar. 10, 1944).

Checks—Unauthorized Issuance—Assumpsit

In an action in assumpsit against the city to recover the amount which plaintiff had paid to city's manager of food stamp plan in cashing a check against funds of the plan, and the money was used by the manager to cover a defalcation, held that judgment for the city be affirmed, the question of whether or not plaintiff cashed the check in good faith or as part of a conspiracy was one for the jury. *Sheehan* v. *City Council of Augusta*, 30 S. E. (2d) 502 (Ga. App. May 6, 1944). (Reh. Den. June 7, 1944).

Claims—Filing of—Parents—Personal Representative

In an action by the parent for damages for the wrongful death of her child, where the complaint alleged that she had filed a statement of the claim with the city clerk but there was no mention of a personal representative, held that the complaint was not subject to demurrer under a statute requiring the filing of a claim by the injured party or the personal representative. *Taylor* v. *City of Clanton*, 18 So. (2d) 369 (Ala. Mar. 2, 1944) Reh. Den. June 22, 1944.

Crowds—Failure to Show Lack of Free Movement

In an action for damages for injuries sustained, held that the evidence of negligence failed to show that the accident was due to the shoving of a crowd so large and unmanaged that plaintiff was restricted in her free movements or that the crowd was large enough to require the presence of guards. *Accetta* v. *City of New York*, 48 N. Y. Supp. (2d) 487 (N. Y. Sup. Ct. App. Div. Apr. 27, 1944). *Vogeley* v. *City of New York*, 48 N. Y. Supp. (2d) 487 (N. Y. Sup. Ct. App. Div. Apr. 27, 1944).

Filling Stations—Building Permit—Compliance with Office of Production Management Order

In an action against the officers of Canon City to require the issuance of a building permit for the construction of a filling station where the permit had been refused because of an order of the Office of Production Management prohibiting construction unless begun prior to the order's effective date, held that the permit should issue since alleged failure to comply with the order was a matter between the Office of Production Management and the builder. *Short* v. *Oriental Refining Co.*, 149 Pac. (2d) 245 (Colo. May 15, 1944).

Fire Trucks—Statutory Liability and Right of Way

Where a fire truck being driven on the left hand side of the road collided with a car entering an intersection on a green light, held that judgment for plaintiff be affirmed because the statute rendering the city liable for negligent operation of a fire truck repealed by implication the statute giving fire trucks the right of way over other vehicles. *Groot* v. *City of Chicago*, 53 N. E. (2d) 245 (Ill. App. Feb. 10, 1944).

Gravel—Parking Lot—Casting of Stones

Where plaintiff sustained the loss of an eye after being struck by gravel thrown up from a parking lot maintained by the village, held that the plaintiff could not recover as a matter of law because of failure to establish that the mishap was within the reasonable apprehension of the village. *Rizik* v. *Incorporated Village of Lynbrook*, 55 N. E. (2d) 504 (N. Y. Apr. 13, 1944).

Jehovah's Witnesses—Prohibiting Sale During Specific Hours

Under an ordinance prohibiting the sale of pamphlets on Saturdays between the hours of 12 noon and 9 P.M., conviction of a Jehovah's Witnesses' member sustained since the regulation was reasonable and necessary for the public safety and convenience. *Ferguson* v. *City of Moultrie*, 29 S. E. (2d) 786 (Ga. App. Apr. 8, 1944).

Officers—Majority Vote—"Pass" Votes

In an action to compel the mayor and board of commissioners of the City of Tulsa to approve a bond tendered by plaintiff in an effort to qualify for the office of chief of police, where the action of the board had to be by a majority vote, held that the vote of affirmance by the mayor and the members of the board "Passing" their votes could not be affirmance since the "Pass" votes could not be counted as affirmative votes. *Caffey* v. *Veale*, 145 Pac. (2d) 961 (Okla. Jan. 25, 1944).

Officers—Status of One Temporarily Holding Office of Mayor

Where the charter of the City of St. Louis provides that the president of the board of aldermen succeed the mayor if he dies and further that the president vacates his office while serving as mayor, held that when the mayor dies the president does not hold two incompatible offices at the same time and he may resume his former office when the office of mayor has been filled by election. *State ex rel. Gragg* v. *Barrett*, 180 S. W. (2d) 730 (Mo. June 5, 1944).

Plumbing—Prohibiting Use of Durham Work—Reasonableness

Conviction of defendant for having violated an ordinance prohibiting the use of Durham Work in buildings two stories or fewer above the ground, was reversed and the ordinance declared arbitrary and invalid since there was no proof that the use of such work would be a menace to public health and safety. *City of Missoula* v. *Swanberg*, 149 Pac. (2d) 248 (Mont. June 5, 1944).

Retirement System—Employees Within

In an action to compel the board to include petitioners as within the retirement system, held that the employees of the consolidated board of health and the public library were entitled to be placed on the rolls but those of the Associated Charities and of the alcoholic control board were not entitled to be placed on the rolls. *Hunter* v. *Board of Trustees of Retirement System of City of Wilmington*, 30 S. E. (2d) 384 (N. C. June 2, 1944).

Schools—Admission—Racial Discrimination

In an action to compel the admission of colored children to a certain school where it was alleged that the sub-districts had been gerrymandered for racial reasons, held that dismissal had been correct since there was no evidence of gerrymandering or racial discrimination. *People ex rel. Warfield* v. *Board of Education of City of Chicago*, 55 N. E. (2d) 297 (Ill. App. May 29, 1944).

Sewage—Disposal Plant—Government Function—Negligent Operation

Where a landowner sought to recover damages resulting from the operation of the city's sewage disposal plant, held that the city was performing a governmental function and, where negligent operation was not pleaded and there was no finding thereon, no recovery could be had based on negligence. *City of Temple* v. *Mitchell*, 180 S. W. (2d) 959 (Tex. Civ. App. May 3, 1944).

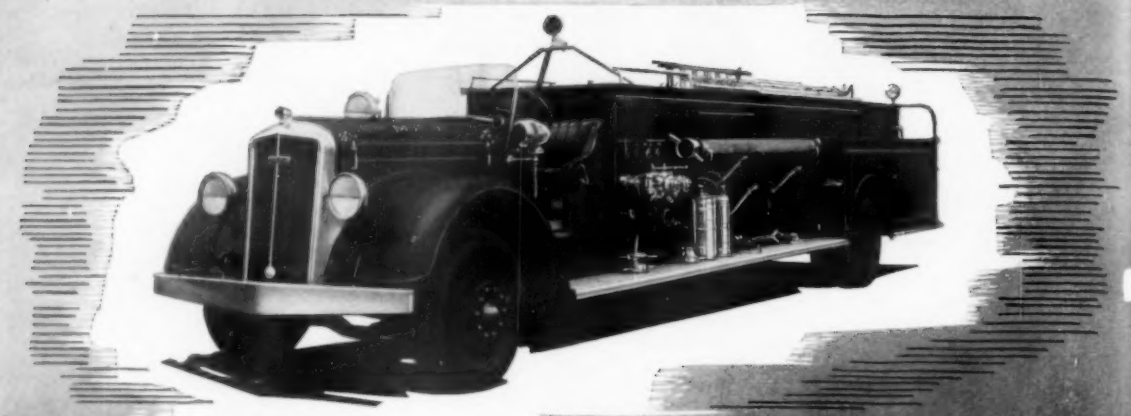
Sidewalks—Sunk-in Slab—Negligence—Jury Question

Where plaintiff sustained injuries when she fell on the sidewalk because a sidewalk slab had pulled away from and had sunk at least two inches lower than the next slab, the question of the city's negligence in failing to repair the defect was for the jury and verdict for the plaintiff should be affirmed. *Luse* v. *City of Chicago*, 53 N. E. (2d) 262 (Ill. App. Feb. 2, 1944).

Taxation—United States Government—Contract of Sale

Where the city sought to levy real property taxes on certain property sold by the United States in 1941 under an installment contract whereby the title was to remain in the government until 1951, when a quitclaim deed would be delivered and purchase-money mortgage given for the balance of the purchase price, held that the purchaser was not the owner and there was no perfect equitable title vested in him subject to taxation. *ABR Corp.* v. *City of Newark*, 35 Atl. (2d) 473 (N. J. Jan. 19, 1944).

FIRE "DEPARTMENT" for Minneapolis



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1000 G. P. M.

QUADRUPLE

Overall Length: 35 ft.

Weight—Empty: 22,000 lbs.

Cylinders: 6

Wheelbase: 274 in.

Horsepower: 200

Pump: 1000 G. P. M.

Hose Capacity: 1100 ft. 2½ in.
600 ft. 3½ in.
400 ft. 1½ in.

Booster Tank: 100 gals.

Designed by Ward LaFrance Truck Division for the City of Minneapolis, this 1000 G. P. M. "Quad" is a departure from standard models, and is so completely equipped that it is virtually a whole fire department on wheels. Included in its equipment are: 9 ft. enclosed four-fold Browder life net, 6 gas masks, 12 salvage covers, 3 in. and 2½ in. hose compartments on side of truck, gate valves for suction inlets, 2-12 ft. lines of 4½ in. soft suction hose, 8 pike poles, 6 axes, Bresnan collar nozzles, Peerless Hose Clamp, Shepherd hook and battering ram.

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WARD LAFRANCE

Wartime Water Rates—XIV

Two of the cities listed show a reduction in water rates and the third, Beloit, Wis., changed its rate structure from a monthly basis to daily charge.

Beloit, Wis.

Rates:

SERVICE CHARGE PER MONTH

⅝"	meter	$ .42
¾"	"	.50
1"	"	.67
1½"	"	1.00
2"	"	1.33
3"	"	2.00
4"	"	4.00
6"	"	8.00
8"	"	12.50

OUTPUT CHARGE

First 500 cu. ft. 17c, net, 18c gross per 100 cu. ft. per mo. per meter
Next 9,500 cu. ft. 12c net, 13c gross per 100 cu. ft. per mo. per meter
Next 10,000 cu. ft. 9c net, 10c gross per 100 cu. ft. per mo. per meter
Next 30,000 cu. ft. 6c net, 7c gross per 100 cu. ft. per mo. per meter
Next 30,000 cu. ft. 4.5c net, 5.5c gross per 100 cu. ft. per mo. per meter
Over 80,000 cu. ft. 2c net, 3c gross per 100 cu. ft. per mo. per meter

The minimum monthly bill is the service charge.

A discount of 1c per 100 cu. ft. from the gross rate is allowed if paid within 10 days from the date of the bill.

The company installs meters at its own expense for all except temporary customers.

For a reconnection of meters for the same consumer upon the same premises, a charge of $1.00 is made.

PRIVATE FIRE PROTECTION SERVICE

This schedule is available for private fire protection service when the company's established rules governing extensions, deposits, services, etc., have been satisfied, and when facilities for withdrawing water are limited to those required and used only for fire protection.

RATE

Monthly flat charge, payable in advance.

2"	connection	or	smaller	$2.08
2½"	"	"	"	3.33
3"	"	"	"	4.17
4"	"	"	"	6.25
6"	"	"	"	8.33
8"	"	"	"	12.50

MUNICIPAL FIRE PROTECTION SERVICE

The city of Beloit is charged $26,000 per year for fire protection service. This charge covers the use of mains and hydrants up to and including the terminal hydrant and connection on each line of main existing in 1920 (See P.S. Com. of Wis. Order 2U-2053). For all extensions of fire service a charge of 8c per year per lineal foot of pipe is assessed on the basis of length of main put into use between hydrants placed, plus a fixed charge of $7.50 per year per hydrant set for each hydrant added to the system.

Charges for fire protection service are due and payable semi-annually, on July 1st and January 1st, for the preceding six months.

On all new extensions ordered by the city a hydrant is set on at least every 500 feet of main in the residence district, and on each 300 feet of main in the manufacturing and retail business districts, and the hydrant charge is prorated in each case on this basis, whether hydrants are ordered set or not.

General Data:

Population served—25,365
Number of services (including hydrant laterals)—9,058
Number of meters—7,238
Number of hydrants—500
Miles of water main—73.45
Plant capacity—7.2 mgd
Supply—wells
Average consumption—2.8 mgd
Tap water—280-316 ppm $CaCO_3$
Treatment—chlorine

Consumer Costs:

3,000 gals.	(400 cu. ft.)		$1.10
5,000 "	(667 " ")		1.47
10,000 "	(1,333 " ")		2.27

Previous rates appearing in THE AMERICAN CITY for September 1934 were based on a consumption by day rather than consumption per month.

B. E. MILLER
Manager
Rate and Valuation Department, Wisconsin Power and Light Company

Van Wert, Ohio

Rates:

Flat rates, first opening $2.10 per quarter, each additional opening 60c per quarter (3 months)

Minimum rate for 670 cu. ft. or less	$2.00
To and including 6,000 cu. ft.	3.00 per M
From 6,000 to 12,000 cu. ft.	2.60 " "
from 12,000 to 20,000 cu. ft.	1.70 " "
All in excess of first 20,000 cu. ft.	.80 " "

The rates for industrial services, which includes all large users of water are:

First 6,000 cu. ft.	$18.00
" 12,000 " "	33.60
" 20,000 " "	47.20

The Water Department makes taps and installs the services at a cost of $12.00 for ¾" services and $25.00 for 1" services. Those larger than 1" are figured at cost for material and labor and charged to the consumer.

There are no hydrant rentals for either public or private fire hydrants and no charge is made for installations of sprinkler heads for private fire protection.

General Data:

Population served—10,000
Number of active services (100 percent metered)—2,800
Number of hydrants—245
Miles of water main—40
Supply—wells
Treatment—chlorination only
Tap water—898 ppm $CaCO_3$, pH 7.5
Average consumption—0.5 mgd

Consumer Costs Per Month:

3,000 gals.	(400 cu. ft.)		$1.20
5,000 "	(667 " ")		2.00
10,000 "	(1,333 " ")		4.00

These rates represent a 13 percent reduction of those appearing in THE AMERICAN CITY for September 1939.

C. H. REID
Superintendent

Lima, Ohio

Rates:

Domestic: (Effective within corporate limits only.)

Minimum—500 cu. ft. or under at $2.00 per quarter
Over minimum—at rate of $.90 per 1,000 cu. ft.

Commercial:

Minimum—$4.00 per 6 months for 1,000 cu. ft.
Over 1,000 cu. ft.—at rate of $.90 per 1,000 cu. ft.

All consumption over 1,000,000 cu. ft. during a 6 months' period at rate of 75c per 1,000 cu. ft.

The minimum charge ($4.00 for water) is added to the February and August bills.

County: (Effective outside corporate limits only.)

Minimum—500 cu. ft. or under at $2.25 per quarter
Over minimum—at rate of $1.00 per 1,000 cu. ft.

General Data:

Population served—50,000
Number of services—10,504
Number of meters—10,504
Number of hydrants—685
Miles of water main—141
Supply—Ottowa River (impounded)
Treatment—Rapid sand filtration
Tap water—250 ppm $CaCO_3$, pH 7.1
Average consumption—7.2 mgd
Plant capacity—8 mgd

Consumer Costs Per Month:

3,000 gals.	(400 cu. ft.)		$ .88
5,000 "	(667 " ")		1.12
10,000 "	(1,333 " ")		1.72

This represents about a 10 percent reduction of rates that appeared in THE AMERICAN CITY for September 1934. Sewer Rentals have been added to this. The Water-Works Department is at present self-supporting and at the present time has an approximate surplus of $200,000, the majority of which will be spent in the near future on improvements to the filtration plant.

F. E. MCCLAIN
Mayor

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. . . And that more than twice as many DUALS have been installed than any other two makes combined?

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THE DUAL PARKING METER *Company*

Harter Bank Building
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CANTON, OHIO

Traffic Control and Facilitation

Conducted by Traffic Control & Facilitation Committee, Institute of Traffic Engineers, 60 John St., New York

D. Grant Mickle, Chairman; Donald S. Berry, Fred W. Fisch, Maxwell Halsey, Wilfred F. Irvin, Harry C. Koch, Philip S. Mancini, Claude N. Maurer, W. F. Milner, W. L. Robinson, I. S. Shattuck, George M. Webb

Trackless Trolleys to Reduce Post-War Congestion

By C. W. GIFFORD
President, Des Moines Railway Co.
Des Moines, Iowa

WITH the declaration of peace and the return of the private automobile in even greater numbers, every city will be faced with traffic congestion that will strangle its business district. Traffic-choked streets impede business, engender depreciation, and result in a loss of money to every person in the community whether he be street cleaner, business man, or home owner.

We all remember too well the agonizing pre-war traffic jams. Unless corrective steps are taken to avoid their recurrence before automobile manufacturers get back into mass production, deterioration of business centers, as we know them today in all cities over 100,000, is just as inevitable as was the disappearance of the horse and buggy. People just aren't going to shop in an area where they must proceed at two and three miles per hour for blocks and blocks, to say nothing of their inability to find parking facilities.

Let's see what this means to large and even moderately sized cities, particularly those west of the Atlantic seaboard where distances are great and retail trade is generally confined to large communities. In cities of over 100,000 population, it is not unusual to have 40 percent of all retail business originate from outside the city limits. Even before the war, traffic movement was terribly handicapped, and a point of stagnation had almost been reached. When total automobile registration increases after the war, it will be impossible to provide street facilities for the out-of-town customer. Result? The actual retail take in many cities may shrink up to 40 percent.

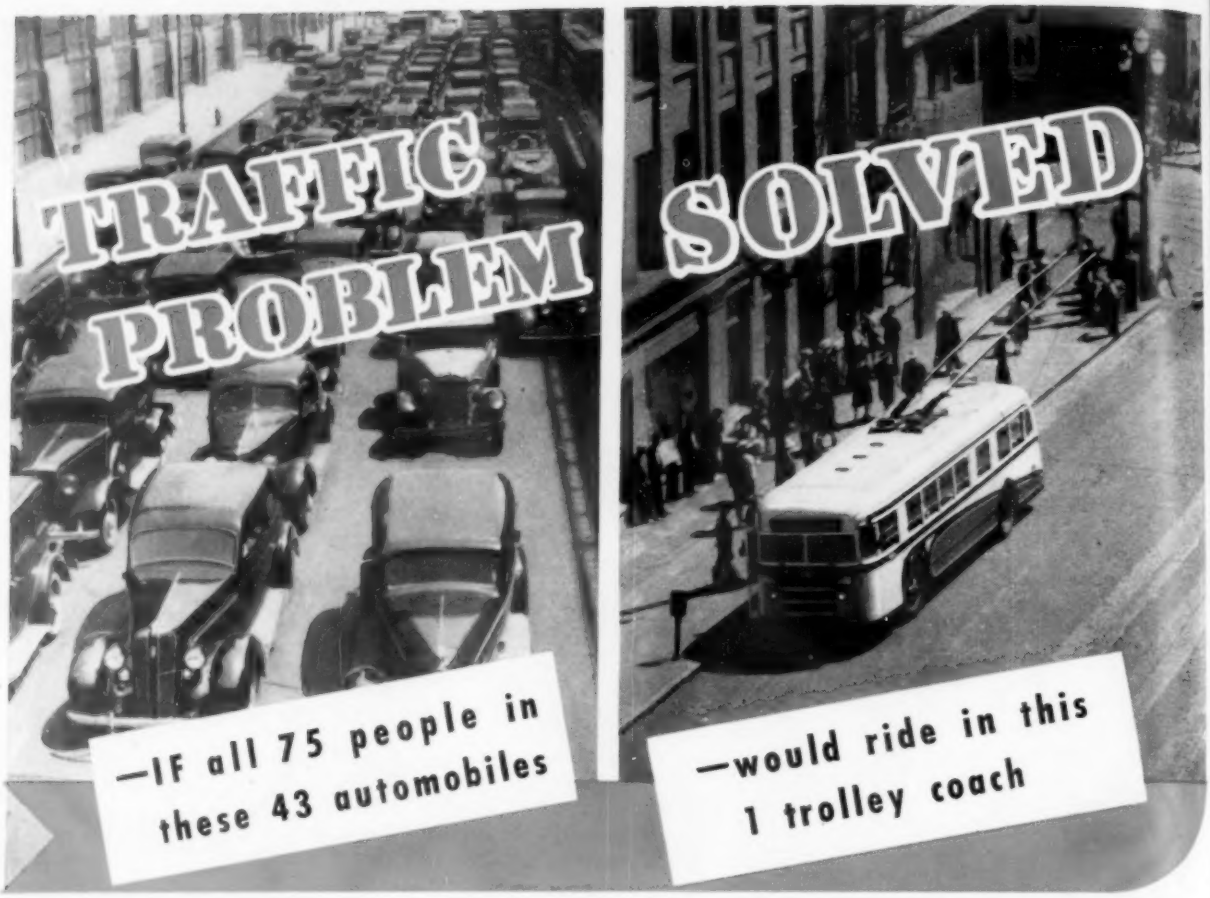
Traffic congestion in loop districts also forces the local shoppers to patronize outlying stores, thus tending to increase the development of neighborhood shopping centers and branch stores in suburban communities, with the subsequent falling off of downtown retail purchases.

So much for the retailer. John Citizen may ask the very natural question, "Why should I care or give a darn if the retailer loses money—it is no concern of mine." Actually, the long-headed city father and citizen should be alarmed. As retail stores wither in the loop districts, the assessed value of these expensive properties is lowered and occasionally removed from the assessment roles of the community. John Citizen's taxes then must be increased to make up the difference—a direct loss to every taxpayer in the community, and a very substantial one.

Retail business provides jobs, directly and indirectly, for a sizeable segment of the working population of any community. When out-of-town customers are driven away by extreme traffic congestion and purchases decline, then hundreds of John Citizens will lose their jobs. This loss in payroll will be reflected in every line of business in the community. Surely City Councils, Chambers of Commerce, and every citizen should be interested in solving this imminent traffice problem and in preserving loop business districts. It's money in everybody's jeans.

The job can be done: the conventional method of attack is very well known. Congress will appropriate the money. A great deal of this money can be utilized for urban street improvements, and communities should carry the torch to be sure that their

Popular use of trolley coaches in Des Moines tends to reduce street congestion, encourage city shopping and stabilize the central business district.



IN ATLANTA, the number of passengers nearly doubled during the war, but only 23 per cent more of these big, fast electric trolley coaches were needed to handle the loads. Thousands of automobiles would have been required to do an equivalent job, taking up 18 times the street space per passenger.

YOUR traffic problem would be solved if all the people riding in automobiles rode in public transit vehicles. All traffic would move much faster. Everyone would get where he's going more quickly. There would be fewer accidents. No parking problem. Perhaps you could reduce your traffic police force. The city's entire circulation system would be toned up, insuring easy accessibility, sound growth, stable property values, and steady tax receipts in every section of the community.

Of course, everyone cannot ride in transit vehicles. But much less practical is any plan based on one-hundred-per-cent *private* transportation. Street space would have to be multiplied many times and the cost would be astronomical.

The future good health of your city depends upon good circulation, and good circulation depends upon a healthy transit system. Work closely with your transit company, and make an important part of your planning the ***moving of people first, rather than vehicles, over your existing streets.*** You'll obtain the best service for the greatest number at the lowest cost to you, to the passenger, and to the taxpayer. ***General Electric Company, Schenectady 5, New York.***

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share of this money is wisely and effectively expended.

Super-highways, expensive street-widening projects are popular, but are futile within the usual city limits. Improvements of this nature do nothing to relieve traffic congestion in the business districts, for downtown streets cannot be widened enough to do much good. It is physically and financially impossible. Therefore, common horse sense indicates that the funds available to improve and construct highways within a community should be used to by-pass through traffic around the business district. Parking fields, perhaps free to out-of-town customers, and located within easy walking distance of the loop district, should, of course, be constructed and encouraged. Measures such as one-way streets, proper traffic-control signals, enforced parking restrictions, and traffic engineers will also help. However, none of them will solve the problem.

Public Transit

The only practical solution is a public transportation system that can move thousands of people into and out of the loop districts speedily and comfortably. The present crisis has forcefully illustrated that urban transit can do the job. Wartime shortage of gas and oil has curtailed automobile driving, but it hasn't curtailed downtown buying. Even with mostly old vehicles, local transit has carried unprecedented loads of shoppers into town. Moreover, the city streets are now arteries of *travel* instead of automobile jams.

It is the humble opinion of the writer that a good urban transportation system, equipped with the *proper type* of *modern* vehicle and receiving active and sympathetic support of its community, is the most practical and inexpensive way to prevent traffic congestion and save loop business districts. A public vehicle occupies not more than 300 square feet of street space, and carries comfortably 80 passengers—less than four square feet of street space per passenger. An automobile occupies approximately 84 square feet of street space and carries, statistics indicate, 1.3 passengers. Therefore, to accommodate the 80 people carried comfortably in one public conveyance, 61 automobiles using 5,120 square feet of street space would be required.

Street Cars and Buses

The above example holds for all types of public vehicles of equal capacity—hay racks, horse-drawn vehicles, motor coaches, street cars, trackless trolleys, or what have you. However, the faster the vehicle, the faster traffic moves. Therefore, cities should care-

(Concluded on page 123)

One-Way, Through, and No-Left-Turn Streets

Routing will be a major concern in convenient and smooth movement of city traffic after the war

By MAXWELL HALSEY
Executive Secretary
Michigan State Safety Commission

ONE-WAY streets, through-traffic streets and no-left turn intersections will become more necessary in both small and large cities after the war, in order to cope with congestion and accidents due to vastly increased urban traffic volumes anticipated by authorities. The majority of arteries in large cities, and *virtually all in smaller towns*, must rely on less elaborate traffic engineering devices. The following discussion concerns traffic routing.

The modern trend toward one-way streets can easily get out of bounds. For instance, a certain medium sized city recently designated all downtown streets for one-way traffic. No competent study had been made before this action, and the blanket order drew immediate protest from residents and merchants.

Such actions can give a bad name to a good traffic device. The basic principle of traffic engineering is that solutions to traffic problems require detailed study to learn the *real problem*. Every traffic control device that restricts some traffic freedom for the general good—has its disadvantages as well. Without experienced engineering counsel and advance study, no city can get maximum results even from erecting a stop sign.

Traffic routing involves one-way streets, through-streets, and turning restrictions. A brief review of each follows.

One-Way Streets

There are three types of one-way streets: 1. Carrying traffic in one direction at all times; 2. Carrying traffic one-way at all times, but with the direction of flow reversed at certain peak hours; 3. Carrying traffic one-way during peak hours only, and two-way at all other times.

Advantages of one-way streets are larger traffic capacity per lane, reduction of accidents and congestion, more ability to synchronize traffic lights to reduce stop-start driving, and less conflict with curb parking.

Disadvantages: motorists often drive extra blocks to reach destinations; one-way signs must be erected at every intersection; and confusion (and often increased accidents) result until motorists become familiar with the system.

On streets where one-way rules vary at different hours of the day, W. A. Van Duzer, Traffic Director for Washington, D. C., has found that a flashing red arrow neon sign is the only way to insure accident reduction. The sign is controlled by a time switch, and turns on at the moment the one-way rules go into effect.

A post-war improvement will be an arrow with two points. Van Duzer states—one being lighted in the morning, but shut off in favor of the other point when the direction of flow is changed. This neon arrow reminds motorists of the direction of flow in force at the moment, and avoids confusion when the flow is reversed.

When properly established and given a trial, one-way streets prove popular with merchants and motorists alike. Narrow and congested streets often lend themselves well to one-way designation—but seldom should such a street be made one-way unless a nearby parallel street can handle traffic moving the opposite way.

Related to the one-way street is the wide street on which one or more extra lanes in the middle are assigned to the heavy morning peak-hour flow, and this designation reversed for the evening peak. The lanes require special marking, but the operation often is well fitted for a wide street that is the only good route between important sections of town.

Through Streets

A through street is an artery connecting one section of town with another and on which movement is expedited by signs requiring traffic or

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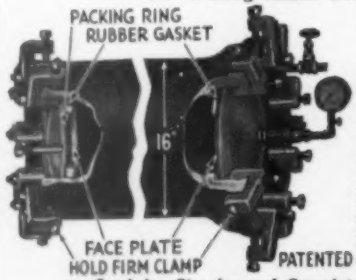

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☆ Special texts have been prepared for administrators on the job. Lesson papers are reviewed by leading authorities in each field. The $35 fee for each course covers the text, individualized lesson instruction, and a certificate upon satisfactory completion of the work. The text alone sells for $7.50 a copy—$60 for a complete set. For use in group training projects, in lots of five or more, the price is $6 a copy.

There are now nearly 800 public officials enrolled in these courses in nearly 300 cities in 44 states.

WRITE FOR A SPECIAL CIRCULAR TODAY

THE INTERNATIONAL CITY MANAGERS' ASSOCIATION

1313 EAST 60TH STREET CHICAGO 37

Barriers placed on Chicago's Outer Drive at rush hours to give additional lanes to the heaviest traffic flow.

intersecting streets to stop before entering or crossing the artery. At major intersections, traffic lights are used rather than stop signs.

Advantages: traffic is moving on fewer streets with less congestion; accidents and delays on neighborhood streets are reduced; and traffic control methods can be more simple and effective when confined to major arteries.

Disadvantages — which proper controls can overcome: motorists often drive too fast on through streets and ignore rights of pedestrians and cross traffic; also, cross traffic may be delayed unreasonably if parallel through streets are too closely spaced.

With every streeet about as good as the next for traffic, it is important that a balanced through-street system be set up and that the arteries selected be those that are natural paths between important points of traffic interest. Too often, stop signs and tra'fic lights are erected when accidents focus attention on specific intersections.

By-Pass Routes

A through-traffic by-pass around the downtown district, and another around the outskirts of town, is a sound modern trend. These beltlines not only relieve crowded inner streets of traffic that have no business to transact in the central area, but also serve as traffic distribution routes for vehicles that *do have* inner destinations. Such traffic circles around the beltline to the point nearest its inner destination before congesting the inner streets.

The beltlines also encourage a more compact growth of the city and the downtown area, offsetting the tendency of developments to spread in narrow fringes out along the main arteries radiating from the center.

Cities that have created downtown and outer beltlines have clearly shown to downtown merchants the benefits of removing through traffic in this business section. Space is now provided for people who have business to transact downtown, their business far offsetting any slight loss of casual trade from passing motorists. So long as both the penetrating and by-pass routes are clearly marked, leaving the choice to the motorist, cities have everything to gain from circumferential by-pass routes.

Turning Restrictions

Control of turns on busy streets becomes more essential as traffic increases. Special traffic signals are well suited for busy intersections where turning problems exist. And on crowded cross-city arteries, prohibition of all left turns during rush hours is sound. Good signs are essential, stating clearly the hours during which left turns are illegal. Patience is required while motorists become acquainted with the prohibitions.

When barred from turning left, a motorist desiring to make such a turn must (a) circle around the block to the right, or (b) preferably turn right at a corner in advance of his desired turning point, and then circle around the block to the left.

Detroit's Grand River Avenue, where left turns are banned permanently, has a system of signs for important intersections which guide motorists into the most convenient routes for making the left-turn detour. The motorist is directed into a right turn in advance of his desired left-turn point, and side-street signs lead him around the block and back to the proper crossing. This system has reduced accidents and congestion drastically, says Ross C. Harger, dirctor of the city's traffic control division, vastly offsetting the slight inconveniences to the 4 percent of motorists who want to turn left.

What can be done in special traffic routing problems is shown by the report of Sidney Anger, Lansing, Michigan, city traffic engineer, who had an accident-congestion situation around the parking lots of two adjoining war factories when factory shifts changed at the same time. Anger used factory plant officers to direct traffic, due to a police shortage. The traffic light at the main intersection was turned off, and the entire street serving the parking lots was given over to one-way traffic at the rush period. Two center lanes of the street were assigned to traffic crossing the main intersection, and the two side lanes were used for cars making left and right turns.

In spite of a two-block detour for traffic running counter to the one-way movement, congestion and accidents were virtually eliminated immediately.

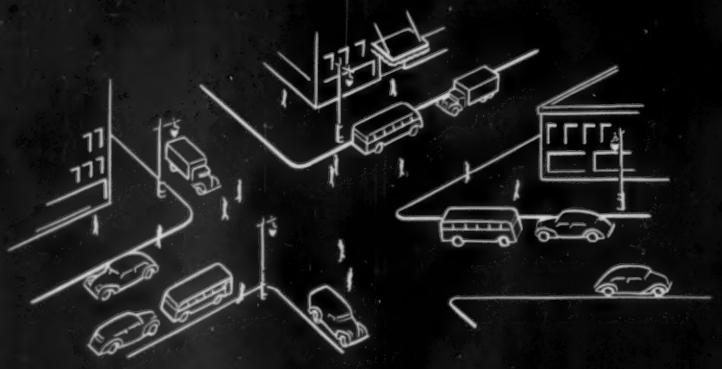
Traffic Safety Program

A 10-POINT traffic safety program was prepared by 40 national safety organizations and announced through the National Safety Council, in Chicago early this fall. These proposals were submitted in anticipation of the necessary new traffic regulations once travel restrictions have been lifted.

1. Build safety devices into all new highway construction and improvements.
2. See that each state and principal city has competent traffic engineering services.
3. Rebuild depleted police departments and provide adequate training of personnel.
4. Expand vehicle inspection facilities and regulations.
5. Provide more specialization in the handling of traffic cases in court.
6. Expand facilities and personnel for improved driver licensing.
7. Resume and enlarge accident reporting and analyses.
8. Enlarge safety instruction in schools including driver training.
9. Carry out programs of safety education for adult drivers and pedestrians.
10. Enact or revise regulatory and enabling legislation required to effect the above proposals.

AT NIGHT

. . . ten times the hazard



Darkness is definitely on Death's side. On main traffic thoroughfares, the chance of meeting Death is ten times as great after dark. And most accidents, fatal or otherwise, occur on these main streets of populous areas. Most traffic hazards will be intensified when war restrictions end; but the dangers due to darkness can be effectively reduced by safety-engineered street lighting.

Have you put traffic-safety lighting where it belongs in your plans for civic betterment? *General Electric Co., Schenectady 5, N. Y.*

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Buy all the BONDS you can — *and keep all you buy*

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STREET LIGHTING
for
TRAFFIC SAFETY

Outdoor Lighting

STREETS — HIGHWAYS — FLOODLIGHTING

Elements of Control for Outdoor Lighting Circuits

THE flexibility of the series circuit has been a large factor in the use of series' distribution for street-lighting circuits. A constant-current transformer is installed at a convenient primary location and the series secondary circuit is extended in any required direction without consideration to the power facilities afforded by the existing distribution systems. This feature of flexibility has also influenced the wide use of the series system of distribution for airport lighting circuits.

Switching of the primary to a constant-current transformer affords the most convenient method of control for the street-lighting systems, airport-lighting systems and protective-floodlighting systems using series' circuit distribution as the series' circuit usually energizes a single schedule service. However, areas of concentrated multiple lighting which include athletic field floodlighting, industrial protective lighting and similar multiple lighting installations, can also use primary switching to good advantage.

A manually operated primary oil switch may afford satisfactory switching for the primary to constant-current transformers conveniently located in attended stations; however, for the usual application with the constant-current transformer located on a cross-arm or in a subway vault a remote-control oil switch or automatic primary time switch connected to energize the constant-current transformer is usually preferred. A low voltage time switch with astronomic dial, or a light-sensitive relay is used to energize the remote-control oil switch operating coils to obtain a full automatic switching schedule following the seasonal changes in the time of sunset and sunrise.

The series' lighting circuit is fundamentally a constant-current system with the constant-current transformer regulating the voltage across the secondary terminals to the correct value of voltage required to give rated constant current in the series' lamp circuit. A break in the series' secondary circuit causes the secondary moving coil of the transformer to assume a position as close as possible to the primary coil in an attempt to obtain a secondary voltage capable of producing the rated constant current. Full open circuit voltage is established across the break in the series' circuit. The value of the open circuit voltage is proportional to the constant current transformer rating. The 30-kw, 6.6-ampere secondary constant-current transformer establishes an open circuit in excess of 6,000 volts.

AFTER DECIDING *to improve or extend a street lighting system, or to light a multiple-sports field or set of tennis courts, the method must be worked out in detail. Unavoidably this is a technical operation requiring expert knowledge and information. This article for city engineers and city electricians endeavors to supply enough data to be of real aid in the selection of a satisfactory method of lighting control. Comments and requests for additional information may be addressed to* THE AMERICAN CITY, *470 Fourth Ave., New York 16, N. Y.*

The series open circuit primary cut-out relay provides the necessary protection against the hazards of open circuit voltage on a series' lighting circuit. The potective relay de-energizes the primary remote-control oil switch operating coils to disconnect the primary to the constant current transformer under conditions of an open circuit fault in the series' protected circuit. Figure 1 shows a typical connection diagram with the primary oil switch operating coils energized from a 120-volt, 60-cycle control circuit and with the protective relay connected to de-energize the control circuit to the oil switch under conditions of an open circuit fault in the series' circuit.

Multiple lighting is frequently preferred for bridges, under-passes, tunnels, safety zones, warning signals or for economical extensions of the street-lighting system in the series lighting area. The series multiple relay affords a convenient means of control for multiple lighting requiring the same schedule as a convenient series' lighting circuit. Figure 2 shows a typical connection diagram with the series' multiple relay 6.6-ampere series operating coil, energized from a convenient series' lighting circuit and with the series multiple relay load contacts connected to energize a multiple lighting load with a schedule identical to the series' lighting schedule.

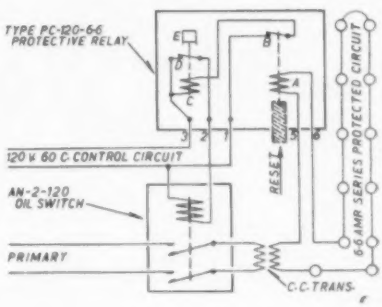


FIGURE 1. *The series lighting circuit is fundamentally a constant current system. In this typical diagram the primary to the constant current transformer is energized by an oil switch.*

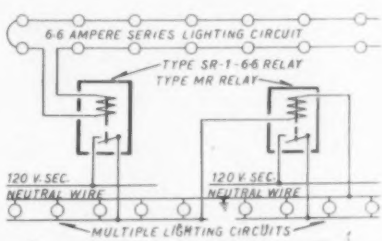


FIGURE 2. *A single pole series multiple relay (left) connected to energize a multiple lighting circuit and a control circuit to the operating coil of the multiple relay shown at right.*

The low operating voltage and the installed distribution facilities have been large factors in the use of mul-

You CAN Stop This!

"It wasn't far home . . . just a few blocks . . . but she didn't make it. Not quite. The footsteps caught up with her in that dark stretch . . . "

And in the "dark stretches" in almost every community, attacks on women and girls . . . purse snatchings . . . traffic accidents . . . and juvenile delinquency all are on the increase.

But you can stop it in your town! You can make your streets *safe* after dark . . . for motorist and pedestrian alike . . . with a modern street lighting system adequate to the needs of the people. Get in touch *now* with your electric utility. Its street lighting specialists will be glad to work with you and your traffic engineers in making a survey of your postwar street lighting needs. Organize your plans on a definite basis, and be ready to act when equipment and materials become available.

IF there are dark spots in your town . . . if you want to learn what sister cities are doing about it—write for your free copy of "Postwar Traffic Plans for the City of Buffalo". You'll find some valuable tips in it! The Street and Traffic Safety Lighting Bureau, 155 East 44th Street, New York, New York.

GOOD STREET LIGHTING—THE SIGN OF A GOOD PLACE TO LIVE

tiple distribution for street-lighting circuits. The multiple lighting circuits are energized from convenient distribution circuits by a remote controlled relay. A low-voltage control circuit to the relay operating coils actuates the relay load contacts. The control circuit is usually energized by a low-voltage time switch with an astronomic dial or by a light-sensitive relay to obtain an automatic switching schedule following the seasonal changes in the time of sunset and sunrise. The multiple relays are available with the load contacts normally closed or normally open with the operating coil de-energized. Either type is available with built-in load fuse, control fuse, or control circuit-lightning arrester.

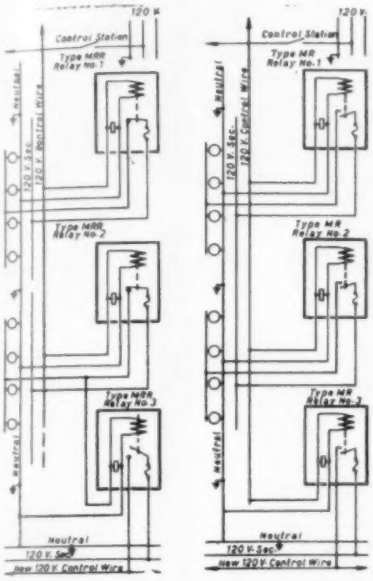


FIGURE 3. *(left) Pilot circuit control of a multiple street-lighting load using relays with load contacts normally* closed *with operating coil de-energized. This relay gives positive control of the ON schedule, since a fault in the control circuit will de-energize the relay operating coil and close the load contacts.*

FIGURE 4 *(right) shows this circuit using another type of relay whose contact are normally open, usually used for positive control of the OFF schedule, since a fault in the control circuit de-energizes the relay operating coil and opens the relay load contacts.*

The pilot wire to the multiple relay location is usually energized from a centrally located station. Central location of the control station establishes shorter pilot control circuits to the relay locations, assures a minimum voltage drop from the control station to the relay coils, reduces outages under fault conditions and permits a convenient means of sectionalizing service faults.

Connection diagram Figure 3, shows a typical application of a pilot circuit control for the multiple relays with load contacts normally closed with the 120-volt, 60-cycle control circuit de-energized. The 120-volt control wire is shown extended in three directions from the control station. Relay No. 1 and relay No. 2 are connected to energize the multiple lighting load while the operating coil of relay No. 3 is cascaded to the load circuit of relay No. 2. The load contacts of relay No. 3 are open when the load contacts of relay No. 2 are closed. The connection as shown for relay No. 3 is used only for long extensions of the control circuit where it is necessary to use this connection to re-energize the control circuit to obtain a satisfactory pilot circuit voltage.

Connection diagram Figure 4, shows a typical pilot circuit control system for a multiple street-lighting circuit using the multiple relays with load contacts normally open with 120-volt, 60-cycle operating coil de-energized. The relay No. 1 and relay No. 2 are connected to energize the multiple lighting load. Relay No. 3 shows the application of the relay with contacts normally open to energize a new 120-volt control wire to additional relay locations. The connection as shown for relay No. 3 is not required except for long control circuits, and except for special applications, it is usually preferable to establish a new control area with the control station centrally located and with the control circuit extended in several directions to establish shorter control circuits to the relay locations.

Figure No. 5 shows an application of the multiple relay with load contacts normally closed with the special series' coil de-energized as frequently employed for applications requiring

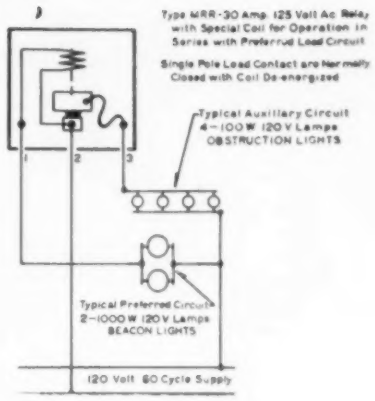

Type MRR-30 Amp. 125 Volt Ac Relay with Special Coil for Operation in Series with Preferred Load Circuit
Single Pole Load Contact are Normally Closed with Coil De-energized
Typical Auxiliary Circuit 4—1000 W 120 V Lamps OBSTRUCTION LIGHTS
1
2
3
Typical Preferred Circuit 2—1000 W 120 V Lamps BEACON LIGHTS
120 Volt 60 Cycle Supply

FIGURE 5. *Using the type of relay described in Figure 3 for automatically switching lights from a main circuit to an auxiliary circuit.*

automatic transfer from a preferred to an auxiliary lighting circuit. With the application shown, the 1,000-watt beacon lights are normally energized, however, with failure of the preferred circuit beacon lights, the relay load contacts close to energize the four 100-watt, 120-watt obstruction lights. The multiple relay with normally closed contacts and with the special series coil for automatic-transfer switching is often used for obstruction- and marine-marker lighting and applications where continuous lighting is imperative.

Sports Fields

The switching schedule of floodlighting circuits for baseball, football and softball fields, is usually irregular and it is difficult to establish a predetermined schedule for full automatic switching. Control can be accomplished by using manually operated switches or by remote control switching

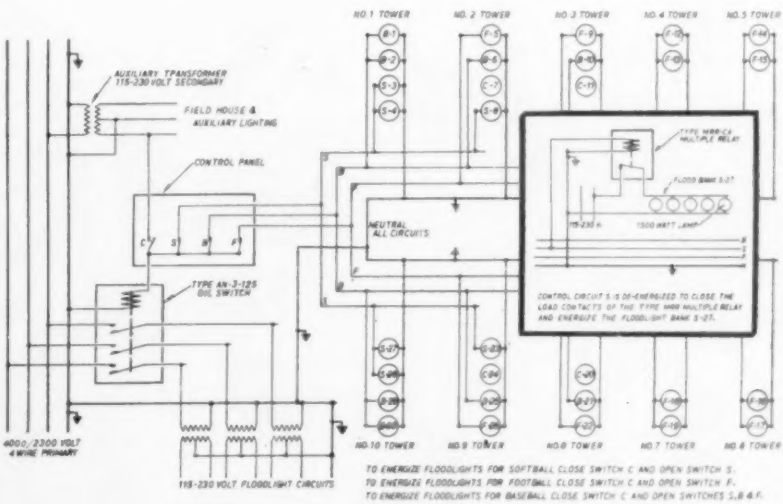
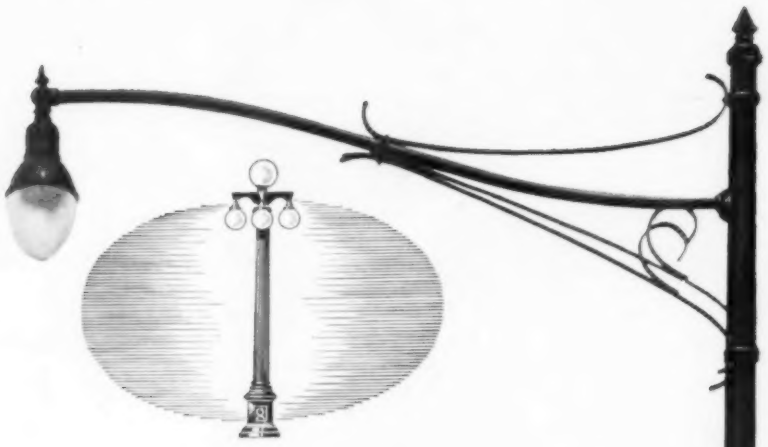

NO. 1 TOWER
NO. 2 TOWER
NO. 3 TOWER
NO. 4 TOWER
NO. 5 TOWER
AUXILIARY TRANSFORMER 115-230 VOLT SECONDARY
FIELD HOUSE & AUXILIARY LIGHTING
CONTROL PANEL
TYPE AN-3-125 OIL SWITCH
NEUTRAL ALL CIRCUITS
TYPE MRRCA MULTIPLE RELAY
FLOOD BANK 5-27
1500 WATT LAMP
CONTROL CIRCUIT 5-S DE-ENERGIZED TO CLOSE THE LOAD CONTACTS OF THE TYPE MRR MULTIPLE RELAY AND ENERGIZE THE FLOODLIGHT BANK 5-27.
4000, 2300 VOLT 4 WIRE PRIMARY
115-230 VOLT FLOODLIGHT CIRCUITS
NO. 10 TOWER
NO. 9 TOWER
NO. 8 TOWER
NO. 7 TOWER
NO. 6 TOWER
TO ENERGIZE FLOODLIGHTS FOR SOFTBALL CLOSE SWITCH C AND OPEN SWITCH S.
TO ENERGIZE FLOODLIGHTS FOR FOOTBALL CLOSE SWITCH C AND OPEN SWITCH F.
TO ENERGIZE FLOODLIGHTS FOR BASEBALL CLOSE SWITCH C AND OPEN SWITCHES S,B & F.

FIGURE 6. *Typical system of control for a sports field with floodlighting designed for football, softball, or baseball.*



Does Old-Fashioned Street Lighting "Date" Your Town?

THE short, ornate street lighting standard with its cluster of globes pointing skyward was the latest thing *thirty years ago*—but it was never designed for today's traffic.

On the other hand, the tall, tapered Union Metal steel standard pictured at the right has been developed by lighting engineers to insure adequate street lighting for today's needs *and for many years to come.* Its height (twice that of old-fashioned standards) holds the luminaire high over the street, directs its light downward, brightening the street without glare, making the night safer for motorists and pedestrians alike.

In your postwar plans for civic improvement, place modern *safety* street lighting high on your list. Consult your utility street lighting specialists, or write to us for information on equipment tailored to fit your peacetime needs. The Union Metal Mfg. Co., Canton 5, Ohio.

UNION METAL

Largest Producers of Street Lighting Standards

with the low-voltage control circuit originating in the field office or other convenient location.

The athletic field used for a combination of football, baseball or softball must have a floodlighting system capable of affording the light distribution and intensity for each of the three playing conditions. Low-voltage multiple relays afford a convenient means of remote control for the OFF schedule lighting. The relays are usually specified with load contacts normally closed with the operating coils de-energized. A typical system of control for an athletic field with the floodlighting designed for football, baseball and softball is shown in Figure 6. The oil switch energizes the primary to the transformer. The control circuit to the single pole multiple relays is energized to disconnect the lamp banks which are not required for the desired schedule.

Floodlighting for tennis courts and similar applications often require recurring daily schedules which permit full automatic switching with primary time switches or with low-voltage time switches connected to energize the operating coils of remote controlled primary oil switches or low-voltage relays. Coin-operated relays are also used to energize the control circuit to the remote-control primary oil switches or low-voltage relays for fixed periods.

This article discusses only the general application of the control units developed for the special requirements of control for out-door lighting circuits. The references to special control applications indicate the flexibility of the standard control units in affording a wide range of special features adapted to specific application requirements.

Trackless Trolley to Reduce Post-War Congestion

(*Concluded from page 115*)

fully select the type of vehicle to be used. The ideal unit is one that has large carrying capacity so as to keep down the number of vehicles on the street; has the ability to accelerate and decelerate rapidly and hold its place in the traffic line; can pull to the curb allowing traffic to flow while it loads and unloads; can pass traffic obstructions; and can be easily re-routed in case of traffic obstructions such as fires or parades. The transit industry is fortunate, indeed, in having available three different types of vehicles, which, in varying degrees, meet the requirements listed above—the modern street car, the gasoline motor coach, and the trackless trolley. Each vehicle has its advantages and some disadvantages.

The modern street car can hold its place in the traffic line; its acceleration and deceleration rates are high; it is quiet in operation; and its passenger-carrying capacity is larger than either of its rivals. For large-city operation it is the ideal vehicle. However, it can't pull to the curb to load and unload passengers, and it is limited to a definitely fixed route.

The motor coach cannot approach the acceleration and deceleration rates of either the modern street car or the trackless trolley. However, it can pull to the curb for loading and unloading and is easily re-routed when necessary. For small city operation and in large communities where wire construction is either prohibited or inadvisable, it is an extremely satisfactory vehicle.

Trolley Coaches

The trackless trolley is, without question, the ideal vehicle. It meets all of the specifications required of a vehicle to reduce street congestion. It can accelerate and decelerate fast enough to keep pace with privately-owned automobiles. It pulls to the curb for loading and unloading; its carrying capacity approaches that of the street car; and it can maneuver around stalled traffic. Its limitation on re-routing in case of necessity can be overcome to a large degree by towing the vehicle around the obstructions. Its scheduled speed is higher than either the street car or the gasoline bus, thus reducing the number of vehicles on the street.

Noise reduction will become increasingly important in our cities of the future. Here the trackless trolley again is the only vehicle of the three that operates with hardly a sound.

Pavement Wear

The pavement wear caused by the trackless trolley has been found to be an unimportant item where good pavement is involved, even though such pavement may be of extremely light construction. In Des Moines, a large number of trackless trolleys have been operating for the past six years on very light asphalt pavement, and the only complaint was on one route where the pavement was nearly 30 years old and very poorly constructed when originally laid. With aluminum and other lighter materials available after the war, the trackless trolley can be constructed to operate with even less pavement wear.

In cities up to at least 200,000 in population and perhaps 500,000 the trackless trolley is unquestionably the ideal unit. Coupled with proper traffic control, it can do more than any other one thing to eliminate the traffic problem in American cities.

We can confidently expect a resurgence of the private automobile. Unless the large American cities adjust and ready existing facilities for its return in greater numbers, their inhabitants will pay a terrible price later for an inevitable relocating and re-establishing of business activities. The city dweller—be he clerk, manager, or stockholder—will do well to push the development of proper mass transportation facilities in his city so as to minimize post-war traffic headaches and subsequent economic losses.

Street Lighting Rulings

THE fact that numerous applications are being received requesting permission to install additional street lights indicates that some utilities do not realize that certain extensions of this kind are permitted under Order U-1-f. Extensions of street lighting service, other than for ornamental purposes, may be made under this order, provided that no extension is built in excess of 1,000 feet per light, and provided that no transformer of any type is installed.

Please note that the provisions of paragraph (i) of Utilities Order U-1, which state that new facilities must be necessary for rendering service at minimum standards, are applicable to new street lighting intallations. Minimum standards for street lighting permit only those installations required for public safety. Modernization and "white way" lighting programs should not be undertaken at this time.

EDWARD FALCK, Director
Office of War Utilities
War Production Board

To Double Street Lighting After War

OUR present white-way system consists of 56 Westinghouse 250-watt high-intensity mercury-vapor lamps on high standards and 16 500-watt incandescent lights on low standards. Our street-lighting plans for the post-war era propose the addition of 51 high standards using 250-watt mercury-vapor lamps and 50 series lamps of 1,000 lumens.

H. C. HOLZ,
City Engineer, Kirkwood, Mo.

PLAN NOW
FOR TRAFFIC SAFETY LIGHTING

Above:
Main Street,
Hudson, Michigan

PROGRESSIVE COMMUNITIES are now studying the problems of post-war safety, particularly ways and means of reducing nighttime hazards . . . Good Street Lighting assures marked reduction in night accidents, facilitates traffic flow with safety, provides convenience and protection.

USE HOLOPHANE REFRACTORS for the most effective, permanent, and economical lighting of your streets and highways . . . There is a Refractor for every type of street—for every size of lamp. Refractors deliver more light, properly distributed and at wider spacings. Holophane Refractors are the only means to efficient light control, increased visibility, and reduced maintenance costs.

HOLOPHANE COMPANY, INC..... *Lighting Authorities Since 1898*

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Zoning and Planning Notes

Prepared by FRANK B. WILLIAMS
Author of *The Law of City Planning and Zoning*

Raising Hogs in Residential District

MASSACHUSETTS.—*Town of Lincoln* v. *Murphy*, Supreme Court, May 24, 1943, reported in 40 N. E. (2d), p. 453.

The defendant Murphy is engaged in the business of raising hogs on his land *in the town of Lincoln*. He now has about 2,100 hogs on this land, on which none of the food for them is raised. The only building upon these premises other than structures for sheltering and feeding the hogs is a structure used for storing trucks, bedding and grain.

No livestock other than hogs is kept upon the land. The premises are located in a district zoned as a "single residence district." One of the permitted uses of land in such a district is "farms, greenhouses, nurseries, and truck gardens; and the sale of produce raised in the town or on land of the owner." The trial judge found as a matter of fact that the premises "were operated for the sole purpose of engaging in the business of raising hogs commercially" and that the land was not a farm within the meaning of the zoning regulation.

This decision is sustained in the upper Court.

One of the chief characteristics of a farm ordinarily is the use of the land for the production of crops by the cultivation of the soil, but farming activities are not confined to the tilling of the land and the harvesting of crops. Land may be utilized for grazing by livestock, or in raising hay for cows, for the production of milk, and other dairy products. A part of the land may profitably be employed in the raising of poultry and the sale of chickens and eggs. There may be an orchard upon the premises which would yield enough fruit to warrant the expenditure of labor in caring for the trees and collecting and marketing the fruit. The raising of hogs by a farmer not only for his own use but for market is not unusual. But these premises are devoted entirely to the raising of a large number of hogs; no other livestock are kept; not a pound of the food fed to the hogs is produced upon the premises; the property is not equipped with any of the implements of farming. In a word, the premises are used as a piggery, and it has long been recognized that this is a use of land different from ordinary farming. To hold that a piggery of the size and character of this one should be considered a farm within the zoning regulations would be inconsistent with the principal aim and purpose of the regulation and would render worthless the safeguards and protection that the regulation endeavors to furnish to single residence districts. Common sense and sound reason prohibits the use of the premises as a piggery.

Zoning Ordinance—Minimum Floor Space

MICHIGAN.—*Lenefsky* v. *Lawler*, Supreme Court, December 20, 1943, reported in 12 N. W. (2d), p. 387.

The zoning ordinance of the City of Huntington Woods provided that in a certain district each new dwelling should have a minimum usable floor space of 1,300 square feet. The plaintiff Lenefsky had applied for a permit for a dwelling of 980 such square feet, which was refused. He claims the requirement of 1,300 feet unreasonable and void. In this contention the court sustains him.

Reasonableness in the exercise of the police power must be considered in connection with the facts in each case. In this district a considerable number of dwellings have been erected which are not in accordance with this requirement; and it would also very materially restrict the use of a large number of vacant lots within it. A house may be erected, like the plaintiff's, with 980 square feet of usable floor area, which will satisfy the requirements of health and wellbeing. Under the circumstances, therefore, in this district, the requirement of 1,300 such square feet is invalid.

EDITOR'S NOTE: It should be remembered that the minimum requirement was held to be excessive only on the facts in this case. There is no intimation in the opinion that this, or a greater, minimum would not be upheld under other circumstances. The reader will remember that there are many zoning cases upholding standards much in excess of minimum standards essential to public health.

Two-Family Dwelling in Single-Family District

NEW YORK.—*People* v. *Leighton*, Broome County Court, October 1, 1943, reported in 44 N. Y. S. (2d), p. 779.

The defendant Leighton was convicted of violating Section 3 of the zoning ordinance of the city of Binghamton by constructing a two-family dwelling in a single-family residence district.

The defendant at the trial offered evidence showing the character of the neighborhood created by the ordinance and the type of houses situated in it. This evidence was offered to prove that the ordinance in its application to defendant's premises was an improper exercise of the police power. The evidence was excluded, and the testimony was limited to the question as to whether the ordinance had been validly adopted and the defendant had constructed a two-family house in violation of it.

The trial court made this ruling on the ground that the constitutionality of the ordinance was a matter which should be left for the consideration of the appellate court. However, an appellate court cannot take judicial notice of the character of the particular district covered by the ordinance or the circumstances and conditions existing there. Hence the exclusion of evidence on these matters renders it impossible for that court to pass upon the question as to whether the ordinance was "designed to promote the public health, safety and general welfare" and made with "reasonable consideration" as to (a) "The character of the district, (b) its peculiar suitability for particular uses, (c) the conservation of property values, (d) the direction of building development." All these elements must under the enabling act be applied by the municipal legislature "in accord with a well considered plan" in order to be a valid exercise of the police power.

Whether the zoning regulation was reasonable and conducive to the public welfare were therefore questions of fact, to be proved by evidence; and an ordinance valid in a given area at the time of its enactment may become unreasonable and void there by reason of subsequent changes in that area, or in operation may have proved itself confiscatory there.

Therefore the appellate court orders a new trial.

Nuisance—General Welfare Affected by the War

NEW YORK.—*Horne* v. *Mt. Vernon Die Casting Corporation*, Supreme Court, August 24, 1943, reported in 44 N. Y. S. (2d) p. 520.

This is an action to enjoin the defendant company from operating its factory, to the injury of adjoining residential property of the plaintiff Horne. The court finds that such injury does result from operation of the factory at night. Such operation should without question be enjoined if the factory were not continuously doing essential war work; but the paramount public interest of the public in such continuous work prevents the issuance of an injunction at this time. However, it is not equitable that the full burden of work in this manner essential to the general welfare should fall exclusively upon the plaintiff. It is a reasonable assumption that the defendant makes a fair profit from its war production. To the extent therefore that the defendant's night operations cause a diminution of the rental value of the plaintiff's property, the defendant should compensate the plaintiff for his loss so long as he engages in this work at night. Hence the defendant is enjoined from operating at night unless it pay to the plaintiff a monthly sum which will compensate him for rental diminution due to such operation. When the defendant ceases to be engaged in war production, the defendant is enjoined from operating at night.

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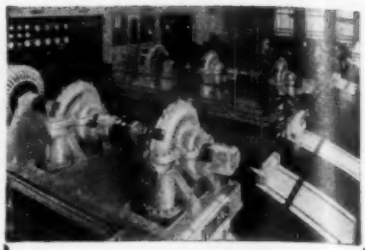

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Conventions—When and Where

Oct. 12-17—Chicago, Ill.
THE INTERNATIONAL CITY MANAGERS' ASSOCIATION. Annual Conference. (Medinah Club.) Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago 37, Ill.

Oct. 18-19—Milwaukee, Wis.
LEAGUE OF WISCONSIN MUNICIPALITIES. Annual Convention. (Hotel Schroeder.) Sec., Frederick MacMillin, Madison, Wis.

Oct. 23-24—Kansas City, Mo.
AMERICAN WATER WORKS ASSOCIATION—MISSOURI VALLEY SECTION. Annual Meeting. (Hotel President.) Sec., Earle L. Waterman, Room 104, Engineering Hall, University of Iowa, Iowa City, Iowa.

Oct. 24-26—Los Angeles, Calif.
AMERICAN WATER WORKS ASSOCIATION—CALIFORNIA SECTION. Annual Conference. (Hotel Biltmore.) Sec., Blair I. Burnson, P. O. Box 720, Oakland 4, Calif.

Oct. 25-26—Peoria, Ill.
ILLINOIS ASSOCIATION OF PARK DISTRICTS. Annual Convention. (Hotel Pere Marquette.) Asst. Dir., Miss Majorie Dickinson, 537 South 4th St., Springfield, Ill.

Oct. 25-27—Chicago, Ill.
AMERICAN MUNICIPAL ASSOCIATION. Annual Conference. (Hotel Blackstone.) Exec. Dir., Earl D. Mallery, 1313 E. 60th St., Chicago 37, Ill.

Oct. 26-27—Parkersburg, W. Va.
AMERICAN WATER WORKS ASSOCIATION—WEST VIRGINIA SECTION. Annual Meeting. (Hotel Chancellor.) Sec., J. H. Harrington, Dir., Division of Sanitary Engineering, State Dept. of Health, Charleston 5, W. Va.

***Oct. 27-28—Wellesley, Mass.**
MASSACHUSETTS FEDERATION OF PLANNING BOARDS. Annual Conference. (Wellesley Inn.) Clerk, Miss M. T. Downey, 43 City Hall, Boston, Mass.

Oct. 30-31—Pittsburgh, Pa.
ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA. Annual Water Conference. (Hotel William Penn.) Chairman, H. M. Olson, c/o Hotel William Penn, Pittsburgh, Pa.

***Oct. 30-31—Columbia, Mo.**
MISSOURI WATER AND SEWERAGE CONFERENCE. Annual Conference. (Hotel Tiger.) Sec.-Treas., W. A. Kramer, State Board of Health, Jefferson City, Mo.

Oct. 31-Nov. 2—Peoria, Ill.
ILLINOIS MUNICIPAL LEAGUE. Annual Convention. (Hotel Pere Marquette.) Exec. Dir., A. L. Sargent, 537 S. 4th St., Springfield, Ill.

Nov. 1-3—Chicago, Ill.
CIVIL SERVICE ASSEMBLY OF THE UNITED STATES AND CANADA. Annual Conference on Public Personnel Administration. (Hotel Stevens.) Acting Dir., J. J. Donovan, 1313 E. 60th St., Chicago 37, Ill.

Nov. 2-3—Toronto, Ont.
CANADIAN INSTITUTE ON SEWAGE AND SANITATION. Annual Convention. (Royal York Hotel.) Sec.-Treas., Dr. A. E. Berry, Dept. of Health, Parliament Bldg., Toronto, Ont., Canada.

Nov. 2-3—Augusta, Maine
MAINE MUNICIPAL ASSOCIATION. Annual Convention. (Augusta City Building.) Staff Sec., Mrs. Ethel N. Kelley, 97 Water St., Hallowell, Maine.

Nov. 2-4—Atlantic City, N. J.
AMERICAN WATER WORKS ASSOCIATION—NEW JERSEY SECTION. Annual Meeting. (Hotel Madison.) Sec., C. B. Tygert, Box 178, Newark, N. J.

Nov. 2-4—Atlantic City, N. J.
SOUTH JERSEY ASSOCIATION OF WATER SUPERINTENDENTS. Joint Meeting with New Jersey AWWA. (Hotel Madison.) Sec., Walter Spencer, 2707 Bethel Ave., Merchantsville, N. J.

Nov. 8-10—Philadelphia, Pa.
AMERICAN WATER WORKS ASSOCIATION—FOUR STATES SECTION. Wartime Conference jointly with the Pennsylvania Water Works Operators' Association. (Hotel Benjamin Franklin.) Sec.-Treas., H. Lloyd Nelson, 1624 Lincoln-Liberty Bldg., Philadelphia, Pa.

Nov. 8-10—Philadelphia, Pa.
PENNSYLVANIA WATER WORKS OPERATORS' ASSOCIATION. Joint Conference with Four States Section AWWA. (Hotel Benjamin Franklin.) Sec., I. M. Glace, 22 South 22nd St., Harrisburg, Pa.

Nov. 9-10—Little Rock, Ark.
ARKANSAS MUNICIPAL LEAGUE. Annual Convention. (Hotel Marion.) Exec. Dir., Glenn G. Zimmerman, City Bank Bldg., North Little Rock, Ark.

Nov. 14-15—Richmond, Va.
AMRICAN WATER WORKS ASSOCIATION—VIRGINIA SECTION. Annual Conference. (Hotel John Marshall.) Sec., W. H. Shewbridge, State Dept. of Health, Richmond, Va.

Nov. 14-15—Watertown, S. D.
LEAGUE OF SOUTH DAKOTA MUNICIPALITIES. Annual Convention. (Hotel Lincoln.) Sec., R. D. Falk, University of South Dakota, Vermilion, S. D.

Nov. 14-15—Watertown, S. D.
SOUTH DAKOTA WATER AND SEWAGE WORKS CONFERENCE. Annual Meeting. (Hotel Lincoln.) Sec. Treas., Glen J. Hopkins, Dir., Division Sanitary Engineering, State Board of Health, Pierre, S. D.

Nov. 16-17—New York, N. Y.
NEW JERSEY STATE LEAGUE OF MUNICIPALITIES. Annual Conference. (Hotel New Yorker.) Exec. Sec., James J. Smith, 808 Trenton Trust Building, Trenton, N. J.

Nov. 16-18—St. Petersburg, Fla.
AMERICAN WATER WORKS—FLORIDA SECTION. Annual Convention. (Hotel Suwanee.) Sec., Dr. A. P. Black, Prof., Agricultural Chemistry, University of Florida, Gainsville, Fla.

***Nov. 20-21—Columbia, Missouri**
MISSOURI MUNICIPAL LEAGUE. Wartime Conference. (Hotel Tiger.) Dir., Bruce J. Carl, Municipal Bldg., Columbia, Mo.

Nov. 20-22—Oklahoma City, Okla.
OKLAHOMA SHORT SCHOOL FOR WATER WORKS OPERATORS. (Municipal Water Treatment Plant.) Sec.-Treas., H. J. Darcy, State Sanitary Engineer, Oklahoma City, Okla.

Nov. 27-30—Cincinnati, Ohio
AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Meeting. Exec. Sec., H. H. Hale, 1220 National Press Bldg., Washington, D. C.

Nov. 27-Dec. 1—New York, N. Y.
AMERICAN SOCIETY OF MECHANICAL ENGINEERS. Annual Meeting. (Hotel Pennsylvania.) Exec. Asst. Sec., Ernest Hartford, 29 W. 39th St., New York 18, N. Y.

***Dec. 6-8—Cleveland, Ohio**
NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS. Annual Conference. Exec. Dir., Charles S. Rhyne, 730 Jackson Pl., Washington, D. C.

Dec. 7-9—Harrisburg, Pa.
LEAGUE OF CITIES OF THE THIRD CLASS IN PENNSYLVANIA. Annual Convention. (Hotel Penn Harris.) Treas., Louis G. Heinle, City Hall, New Kensington, Pa.

Dec. 12-14—Chicago, Ill.
NATIONAL COUNCILS OF STATE AND LOCAL PUBLIC WELFARE ADMINISTRATORS. Annual Meeting. (Hotel Edgewater Beach.) Sec., Howard L. Russell, 1313 E. 60th St., Chicago, 37, Ill.

***Jan. 5-6—Boston, Mass.**
MASSACHUSETTS SELECTMEN ASSOCIATION. Annual Meeting (Gardner Auditorium-State House.) Exec. Sec., Axel E. Zetterman, Ashland, Mass.

***Jan. 7—Cheyenne, Wyoming**
LEAGUE OF WYOMING MUNICIPALITIES. Annual Meeting. (Hotel Plains.) Exec. Sec., G. R. McConnell, Laramie, Wyo.

***Jan. 16-19—Chicago, Ill.**
AMERICAN ROAD BUILDERS' ASSOCIATION. Annual Meeting. (Hotel Stevens.) Charles M. Upham, 952 International Bldg., Washington, D. C.

***Jan. 17—New York, N. Y.**
AMERICAN WATER WORKS ASSOCIATION—NEW YORK SECTION. Mid-Winter Meeting. (Hotel Pennsylvania.) Sec., R. K. Blanchard, 50 W. 50th St., New York 20, N. Y.

***Jan. 19—New York, N. Y.**
NEW YORK STATE SEWAGE WORKS ASSOCIATION. Annual Meeting. (Hotel Pennsylvania.) Sec.-Treas., A. S. Bedell, c/o State Dept. of Health, Albany, N. Y.

***Jan. 22-24—Lafayette, Ind.**
PURDUE ROAD SCHOOL. (Purdue Memorial Union.) R. B. Wiley, School of Civil Engineering, Purdue University, Lafayette, Ind.

***Jan. 22-26—New York, N. Y.**
AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS. Winter Technical Meeting. (Engineering Societies Building.) Sec., H. H. Henline, 33 West 39th St., New York 18, N. Y.

***Feb. 28-Mar. 2—New York, N. Y.**
ASSOCIATION OF HIGHWAY OFFICIALS OF NORTH ATLANTIC STATES. Annual Conference. (Hotel Pennsylvania.) Sec.-Treas., A. Lee Grover, c/o State Highway Dept., Trenton, N. J.

* First appearance on this page.

OFFICERS ELECTED AT RECENT CONVENTIONS

League of Iowa Municipalities

Pres., FRANK K. HAHN, Mayor, Cedar Rapids
Vice-Pres., C. M. MCHUGH, Mayor, Cedar Falls
Trustee, WILSON E. MABREY, Mayor, Carter Lake
Exec. Sec., FRANK PIERCE, Marshalltown

League of North Dakota Municipalities

Pres., DR. V. E. SANDBERG, Mayor, Minot
Vice-Pres., L. T. SPROUL, City Attorney, Valley City
Trustees, C. J. ROBIDEAU, Mayor, LaMoure
DR. J. A. JOHNSON, Mayor, Bottineau
W. F. SCHUTT, City Auditor, Grafton
Exec. Sec., MYRON H. ATKINSON, Bismarck

Montana Municipal League

Pres., W. P. HARRISON, City Clerk, Great Falls
First Vice-Pres., C. L. WALTERMIRE, Mayor, Roundup
Second Vice-Pres., H. E. BEDDINGER, Mayor, Billings
Treas., V. N. KESSLER, City Clerk, Helena
Sec., M. J. MEE, Anaconda

North Dakota Water and Sewage Works Conference

Pres., F. W. PINNEY, Sewage Works Supt., Fargo
Vice-Pres., S. K. SVENKESON, Public Works Supt., Minot

(Concluded on page 129)

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North Dakota Water and Sewage Works Conference

(*Continued from page 127*)

Sec.-Treas., K. C. LAUSTER, Acting Dir., Div. Sanitary Engineering, State Dept. of Health, Bismarck

Directors, JOHN KLEVEN, Sewage Works Supt., Grand Forks
HARLEY QUAM, Water & Sewage Works Supt., Lisbon
R. J. LOCKNER, Water & Sewage Supt., Cooperstown
W. H. SWANSON, Waterous Co., St. Paul, Minn.

National Shade Tree Conference

Pres., FORREST C. STRONG, Dept. Botany, Michigan State College, East Lansing, Mich.
Vice-Pres., SAMUEL BAXTER, Fairmount Parks, Philadelphia, Pa.
Sec., L. C. CHADWICK, Dept. of Horticulture, Ohio State University, Columbus, Ohio
Editor, PAUL E. TILFORD, Dept. of Botany, Ohio Agricultural Experiment Station, Wooster

National Tax Association

Pres., DIXWELL L. PIERCE, Sec., State Board of Equalization, Sacramento, Calif.
Vice-Pres., JAMES W. MARTIN, Dir., Bureau of Business Research, University of Kentucky, Lexington, Ky.
Sec., RAYMOND E. MANNING, Library of Congress, Washington, D. C.
Treas., ROBERT J. EBY, New Rochelle, N. Y.

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Sec., JOHN F. MURRAY, Chief of Police, Perth Amboy, N. J.
Exec. Sec., EDWARD J. KELLY, Supt. Rhode Island State Police, Washington 4, D. C.
Sergeant-at-Arms, WM. M. PETERSON, Chief of Police, Winnetka, Ill.
Treas., JOHN L. SULLIVAN, Chief of Police, Pittsfield, Mass.

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Pres., KARL R. KENNISON, Chief Engr., Met. Dist., Water Supply Comm., 20 Somerset St., Boston, Mass.
Vice-Pres., ARTHUR L. SHAW, Partner, Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass.
Director, SIDNEY S. ANTHONY, Supt. & Engr., Augusta Water Dist., 12 Williams St., Augusta, Maine.
Treas., FRANK J. GIFFORD, Public Utilities Consultant, 7 Upland Rd., Cambridge, Mass.

National Recreation Association Announces Change of Plans

In response to a request from the Office of Defense Transportation the Recreation Congress, which was scheduled to be held at Atlantic City December 4-8, has been postponed and will be held at a time and place to be announced later.

Who's Who on the Front Cover

HERE are the titles of engineers serving the fourteen largest American cities whose portraits appear on the front cover of this issue:

New York—JOHN C. RIEDEL,
Chief Engineer, Bureau of Engineering
Chicago—WILLIS W. DeBERARD
City Engineer
Philadelphia—MARTIN J. McLAUGHLIN
Chief Engineer, Bureau of Water, Department of Public Works
Detroit—GEORGE R. THOMPSON
City Engineer
Los Angeles—LLOYD ALDRICH
City Engineer
Cleveland—JOHN C. WENRICK
City Engineer
Baltimore—NATHAN L. SMITH
City Engineer
St. Louis—MILTON M. KINSEY
President, Board of Public Service
Boston—GEORGE G. HYLAND
Commissioner, Department of Public Works
Pittsburgh—JOHN D. STEVENSON
City Engineer
Washington—COL. C. W. KUTZ
Engineer-Commissioner
San Francisco—JOHN J. CASEY
City Engineer
Milwaukee—JOSEPH P. SCHWADA
City Engineer
Buffalo—RICHARD C. WHITE
City Engineer

The Municipal Bond Market

Some sales of new issues as reported in September issues of *The Bond Buyer*:

Amount	Borrower and Purpose	Rate (%)	Term (years)	Basis (%)
$950,000	Buffalo, N. Y. General Improvement	.80	3.166 Avg.	0.79
450,000	Lynchburg, Va., Funding and Public Improvement	1.00	2.19	0.945
790,000	Paterson, N. J., Funding of 1944	1.20	7.33	1.180
218,000	Paterson, N. J., Sewer of 1944	1.20	7.33	1.180
200,000	Hackensack, N. J., General Refunding	1.40	9.5	1.354
220,000	Scranton, Pa., Funding and Improvement	1.50	8 Avg.	1.428
150,000	Toledo, O., Intercepting Sewer	1.50	2.26 Ser.	1.44
180,000	Royal Oak, Mich., Sch. Dist. Refunding, Series AA-4	2	11.75	1.9922
906,000	Shaker Heights, O., Rapid Transit System Revenue	2	19 Avg.	2.09
104,000	Carbondale, Pa., Funding	2.25	10.166	2.204
115,000	Norton Tp., Mich., Water and Sewer System Revenue	3	18.75	3.372

National Physical Fitness Program

IN a cooperative effort to aid the national physical fitness program and plan a Special Emphasis Year for Physical Fitness, a conference of representatives from the American Medical Association and the National Council on Physical Fitness met recently in Washington, D. C., and formed a Joint Committee on Physical Fitness, with Col. Leonard G. Rowntree as Chairman.

The following platform was adopted by the Joint Committee:

1. Help each American to learn physical fitness needs.
2. Protect against preventable defects.
3. Attend to correctable defects.
4. Know how to live healthfully.
5. Act to acquire physical fitness.
6. Set American standards of physical fitness at high levels.
7. Provide adequate means for physical development.

Additional information about the forthcoming action of the Joint Committee and the results of the planning conference can be obtained from local country health units and State Medical Associations.

Philadelphia's Water Works

(*Concluded from page 87*)

lowland ditches in their respective areas. In addition the High Pressure System includes 64 miles of mains, 1,800 valves and over 1,000 high pressure fire hydrants.

The personnel of the Bureau consists of approximately 832 employees of various classifications. The Bureau has 88 pieces of motorized equipment.

Organization

The organization is composed of the following divisions and heads:

Deputy Chief of the Bureau, Samuel H. Thompson; Water Works Improvement Division, Seth M. Van Loan; Registrar's Division, Daniel J. O'Connor; Accounting Division, William R. Webster; Sanitary Division, Lyle L. Jenne; Executive Division, Frank J. Gallagher; Automotive Division, R. A. Leaf; Distribution Division, Harold Barnes; Meter Division, John J. Sullivan; Engineering Division, Joseph E. Gill; Filtration Division, Robert J. Waters; Pumping Division, John M. Broggini; High Pressure Division, Nicholas Mango; Sewage Disposal Division, Robert H. Moor.

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Use of Kardex for the Tax Office Record makes it possible to combine the permanent assessment record with a separate card showing details of tax delinquencies. These dual records are securely housed in individual pockets for each property.

Because the margins are *visible*, reference to any card or group of cards is instantaneous, resulting in maximum speed in transcribing information.

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Municipal and Civic Publications

Build Airparks Now

PUT YOUR TOWN ON THE AIR MAP.—*The Personal Aircraft Council of the Aeronautical Chamber of Commerce of America, Inc., Shoreham Bldg., Washington 5, D. C. 199 pp. Illus.*

Suggestions as to how to put your city on the air map of tomorrow. This booklet warns that cities which neglect to provide landing spaces for the convenience of local and out-of-town air-minded individuals will find that their industries and tourist trade will lag far behind that of other cities.

The Aeronautical Chamber has proposed immediate construction of the following civic developments, has described them, and estimated their cost: airparks in different sections of the city for the convenience of the traveler, businessman, or housewife; flight-stops to serve as stopovers between cities; and air harbors on bays, rivers, lakes, or sounds adjacent to a city. Also included in the pamphlet are recommendations for financing these improvements, pointing out that eventually they will pay for themselves through gasoline and licensing taxes.

Aviation and the Courts

AIRPORTS AND THE COURTS.—*By Charles S. Rhyne, National Institute of Municipal Law Officers, 730 Jackson Place, N.W., Washington 6, D. C. 1944. viii + 222 pp. $5.*

How federal, state, and local courts have expressed themselves on such matters as airport acquisition, condemnation procedures for acquisition of land for airport purposes, airport purposes, airport leases, airport zoning and protection, and regulations governing the use of airports is taken up by Mr. Rhyne in this volume. Previous legal decisions relating to these topics, and others, are fully discussed, and trends are noted. Study of the contents of this book will help aviators, airplane and airport owners, and public and private airport operators to avoid the mistakes of the past and to plot their future course of action on a sounder basis.

The book is generously documented and is indexed. The listings of all court decisions and articles cited make further study on any of the topics discussed easier.

Conferences on Post-War Reconstruction

POST-WAR ECONOMIC SOCIETY.—*Addresses delivered at the Third Series of Conferences of the Institute on Post-War Reconstruction. Edited by Arnold J. Zurcher and Richmond Page. Institute on Post-War Reconstruction, New York University, N. Y. 1944. 306 pp. $3.50.*

Addresses prepared by outstanding economists and leaders in the field of government, labor, and the professions. Critical analyses of such important phases of American life as education, transportation, cooperatives, labor organizations, population shifts, agriculture, and how to plan for the post-war world by tackling the task of rehabilitation of service men and women, the "cartel," urban redevelopment and related problems. The parts on Urban Development Planning, A Re-Appraisal of Urban Planning, and Planning Our Post-War Construction, are discussed by Guy Greer, Mrs. Samuel I. Rosenman, and Ira S. Robbins respectively.

Individuals invited to speak at these conferences represent many shades of political and social opinion.

Post-War Fiscal Policies

LOCAL GOVERNMENT FISCAL POLICIES. *Municipal Finance Officers Association of United States and Canada, 1313 East 60th St., Chicago, Ill. August 26, 1944. 4 pp. 10c.*

Recommends post-war fiscal policies for local governments and set forth certain fiscal policies as a means of making local government more effective.

(*See page 96 of this issue*)

Labor Unions and Police Officers

THE RIGHT OF POLICEMEN TO JOIN LABOR UNIONS: *A legal opinion to the Chicago Commissioner of Police. Barnet Hodes, Corporation Counsel, Law Department, City of Chicago, Ill. 24 pp.*

In the opinion of the Chicago Law Department, policemen may be prohibited from joining labor unions on the following grounds: (1) according to Illinois laws, *strikes*, an essential tool of labor organizations, would violate the Civil Service regulations wherein an employer is sworn to discharge his duties faithfully or suffer drastic penalties; (2) *collective bargaining* cannot take place because municipal officers have no right to enter into a contract with public employees whose condition of employment are fixed by law and appropriation; (3) appointments and promotions in the Civil Service should be made on the basis of merit, and not on the basis of membership or non-membership of a labor union, as a *closed shop* would demand (4) the *check-off* violates the opinion of the Illinois courts (*Merwin v. City of Chicago*, 1867) that "a municipal corporation cannot be properly turned into an instrument or agency for the collection of private debts"; and finally (5) it is within the legal right of the City Council, the Civil Service Commission, and the Commissioner of Police of Chicago to prohibit members of the police department from joining labor unions. This last decision is based on a recognition that "in the case of public employees the right to join a labor union is a qualified one dependent upon the legislative and administrative policy of the government agency."

Race Relations

THE NEGRO IN AMERICA.—*By Maxwell Stewart. Public Affairs Committee, 30 Rockefeller Plaza, New York 20, N. Y. 1944. 32 pp. 10c.*

False race theories, an unfounded obsession of intermarriage, and a complete lack of knowledge of one another are the principal causes of tension between Negro and White Americans today, states Mr. Stewart in this summary of Gunnar Myrdal's two-volume work, "An American Dilemma." Our race theories are, for the most part, the author holds, preconceived or formed on the basis of superficial observations—the high disease and mortality rate among the Negro population, low "intelligence" ratings, the small number of Negroes in the professions and in public life—without taking into consideration the reasons for these conditions which are not racial but economic and social. (*See review of "Races of Mankind,"* THE AMERICAN CITY, January 1944, p. 97.) The pamphlet points out the fallacy of the old argument, "Would you want *your* sister to marry one" as entirely irrelevant, since the Negro wants not intermarriage but political and economic equality.

The author emphasizes the need for serious discussion of this problem; and warns that we are providing the Axis countries with excellent anti-democratic propaganda, since we cannot preach one thing and practice another.

Unofficial Planning in Britain

POST-WAR PLANNING IN BRITAIN: UNOFFICIAL POST-WAR PLANNING, 1939-1944.—*British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. 1944. 88 pp.*

A compendium of points of view on all phases of post-war planning in Britain. Political, economic, educational, commercial, and religious groups are represented and their publications listed. Topics discussed include economic and political planning, relief and rehabilitation in the international sphere, and reconstruction at home in the fields of medicine and health, science, the churches, economics, agriculture, town planning, housing, and local government. Such diversified points of view as those of the Communist Party, the Chamber of Commerce, and the Society of Friends are presented.

County Government

COUNTY FINANCE: 1942 COMPENDIUM.—*Prepared under the supervision of E. R. Gray, Chief, Governments Division, Bureau of the Census, U. S. Department of Commerce, Washington, D. C. 1944. iv + 490 pp. $1.00.*

That the largest population of Americans—over 116 million—affected directly by any type of local government, live under county government is pointed out in this report. Of the total county government revenue of $1,635 million in 1942, the report notes, $954 million was derived from direct county taxes, and $551 million received as fiscal aid by counties but paid by taxpayers to state and federal governments. In October of 1942, the report states, there were 332,231 non-school officials and employees on county payrolls, which amounted to $422 million for the year.

The report, the most comprehensive study of county government in the United States yet made, covers the finances and employment of 3,099 county governments of the following categories: independently organized counties (3,050); county governments not independently organized but dependent on cities or operating as city-county governments (9); areas lacking county government including cities performing functions of counties elsewhere, unorganized areas bearing county designations; and federal areas (40).

Comparative tables summarize by states the general revenue, expenditures, and debt outstanding of county governments in 1942 and 1932. Other tables analyze by states for 1942 the general revenue and general expenditures of county governments; capital outlays of county governments in 19 specified states; debt and retirement of debt in county governments; county employment, population, and economic characteristics; and the number of county governments.

Two Reports on Housing in Other Countries

GOVERNMENT MEASURES APPLIED IN OTHER COUNTRIES TO ENCOURAGE PRIVATE BUILDING OF HOUSING BEFORE AND DURING THE PRESENT WAR.—*Report No. 12. Mimeo. 38 pp.*

NOTES ON EMERGING POST-WAR HOUSING POLICIES IN CERTAIN OTHER COUNTRIES.—*Report No. 13. Mimeo. 25 pp.*

National Housing Agency, Office of the Administrator — Urban Development Division, 19th and D St., N.W., Washington, D. C.

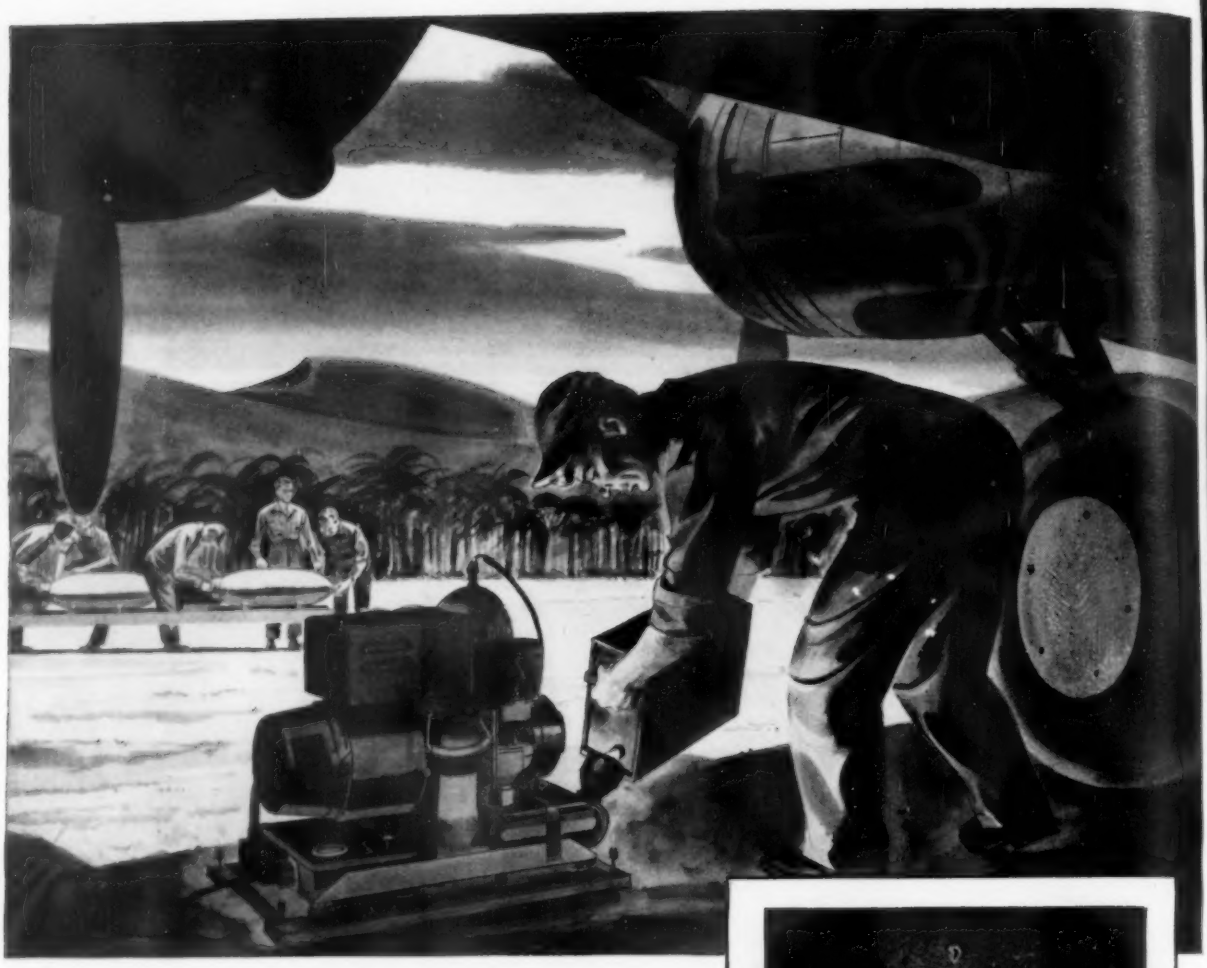
The first publication is an informational report and the second an analytical report of what has been done by the governments of other countries to encourage private investment in housing. The countries discussed in report No. 12 are: Switzerland, Finland, Canada, Sweden, Denmark, Eire, Australia, Great Britain, and Belgium. Report No. 13 deals with developments and trends of housing in Great Britain, Canada, Australia, New Zealand, South Africa, Sweden, Denmark, and Finland.

Although no clearly defined post-war housing policy has been evolved, there is a trend on the part of governments to ensure private realtors freedom from the competition of government-aided housing. Among the steps taken by the various countries listed in Report No. 12 are the following: government guarantees of building loans, low interest loans, tax exemptions, control of prices of building materials, provision of low-cost land for subsidized housing, subsidies for new construction, repairs, and remodeling, and subsidies to large families for more adequate housing.

An Aid to Justices of the Peace

FORMS OF INFORMATION (SECOND EDITION).—*Prepared by Daniel J. O'Mara, District Attorney, Monroe County, for the Association of Towns of the State of New York, Hotel Ten Eyck, Albany, N. Y. 39 pp.*

Lists the various misdemeanors and gives the recommended legal forms for recording information (similar to indictment) to be used in the prosecution of each offense.



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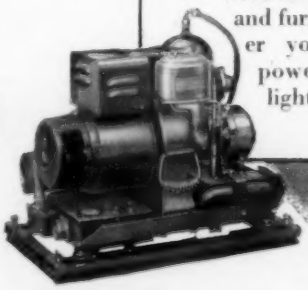

HOMELITE CORPORATION

PORT CHESTER, NEW YORK

New York State's Approved Post-War Projects

APPROVED STATE AND MUNICIPAL PROJECTS.—*New York State Post-War Public Works Planning Commission, State Office Bldg., Albany 1, N. Y.* July 1, 1944. *Mimeo.* 77 *pp.*

A report to the public and interested industries on planned post-war construction in New York State covering that portion of the State program administered by this Commission. Plans listed for state institutions, parks, parkways, etc., are estimated to cost, when completed, $27,388, 093; and plans of the various counties and municipalities for 2,551 projects are estimated to cost $168,987,395. These local public works include the construction of sewers, roads, bridges, fire houses, disposal plants and garbage incinerators, etc. The preparation of plans for these approved municipal projects is being financed jointly by the state and the local governments on a 50-50 basis.

Housing Program and Policy

RECOMMENDATIONS FOR A HOUSING PROGRAM AND POLICY.—*National Committee on Housing, Inc., 512 Fifth Ave., N. Y. August* 1944. 6 *pp.* 25c.

Recommendations based on reports and findings of the 1944 National Conference on Housing. The purpose of this program and outline of policy is to correlate and coordinate the activities of all sections of the home building industry and of the governmental agencies concerned—local, state, and federal—in an orderly reconversion of peacetime production which will produce better homes and communities. The recommendations fall under the heads of Post-War Demand for Housing; Period of Transition—The Immediate Problem; Urban Redevelopment; Meeting the Total Housing Need; Market Analysis Service; National Research Service; and A Continuing Program and Industry.

Planning for the Child in Every Community

OUR CONCERN—EVERY CHILD: *State and Community Planning for Wartime and Post-War Security of Children.—By Emma L. Lundberg. Publication 303. U. S. Department of Labor, Children's Bureau. Available from the Government Printing Office, Washington 25, D. C.* 1944. 84 *pp.* 15c.

Issued as a guide for the study of state and community resources and action needed to safeguard childhood and provide opportunities for youth. It includes discussion of goals of a long-range child-welfare program, safeguards for children in wartime, and post-war objectives; outlines for the review of state and community conditions and services affecting children; and a suggested outline for an inventory of community resoures. The publication is available, upon request, free of charge to persons or organizations that have specific use for it in developing services for children or studying child-welfare problems of the war and post-war periods.

Recreation for 'Teen-Agers

WHAT ABOUT US? A REPORT OF COMMUNITY RECREATION FOR YOUNG PEOPLE.—*Office of Community War Services, Division of Recreation, Social Security Agency, Washington 25, D. C.* 1944. *Illus.* 40 *pp.*

Relates the experience of various communities that have undertaken to provide recreation for 'teen-agers. In some communities the impetus has come from the boys and girls themselves who have accomplished their purpose by either putting pressure on their local authorities, or by initiating their own program; i.e., opening a 'teen-age canteen and charging dues or a small admission. Some civic-minded individuals have donated cellars, garages, or attic rooms for recreational purposes, and some towns have remodeled their public halls to meet this need. The pamphlet points out that the experience of 1,300 communities shows that it is wise to place central responsibility in the hands of a War Recreation Committee to survey, and expand if necessary, existing facilities to map new programs, and find the necessary funds and leadership.

Planning Organizations in the United States

POST-WAR PLANNING IN THE UNITED STATES: AN ORGANIZATION DIRECTORY 3.—*The Twentieth Century Fund, 330 W. 42nd St., New York 18, N. Y.* 1944. 151 *pp.* $1.

The third of a series of surveys made by the Twentieth Century Fund on planning agencies, public and private, in the United States. The increased number of these organizations—197 as compared with 105 in 1942 and 137 in 1943—reveals an ever-growing awareness of the necessity for planning and careful analysis of the problems which will face America in the post-war world. The Directory gives the background and aims of the various agencies, tells how they are supported, lists the directing personnel, and describes the current post-war projects and publications of each. For those curious to see on what phases of planning the emphasis lies, the classification of agencies according to type and areas of major interest will be most revealing.

Only those organizations which operate on an international or national basis and which carry on a continuous program are listed.

Housing Officials Yearbook

HOUSING YEARBOOK: 1944.—*Edited by Hugh R. Pomeroy and Edmond H. Hoben. National Association of Housing Officials, 1313 East 60th, Chicago 37, Ill.* 1944. 176 *pp.* $3.

The editors have again assembled a volume to serve those interested in the role of the federal, state, and local governments in housing, housing after the war, and a listing of all the officers of the National Association of Housing Officials. Trends of the year are marked in the introduction, which notes housing and court action, related economic factors, legislation, administrative development, and the record of production of dwelling units.

The section on the federal government, ably covered by authorities in the various fields of government activity, gives an up-to-date account of what has been done in the past year. John B. Blandford, Jr., discusses the National Housing Agency; Herbert Emmerich, public housing; John H. Fahey, the Federal Home Loan Bank Administration; and Abner H. Ferguson, the Federal Housing Administration and the war. Army war housing is taken up by Colonel John J. O'Brien and Charles M. Foster; and Rear Admiral B. Morrell, C.E.C., U.S.N., discusses Navy housing; Federal rent control, the Operations of the Committee for Congested Production Areas, priorities in the War Housing Program—the role of the WPB, and the Farm Security Administration's housing activities are reviewed by Ivan D. Carson, Corrington Gill, F. J. C. Dresser, and Frank Hancock respectively.

Educational Films

WAR FILMS FOR WAR USE.—16 *mm sound films (non-theatrical). Office of War Information, Bureau of Motion Pictures, Washington 25, D. C.* 1944. 20 *pp.*

List of films distributed by the OWI, to inform the American people of the status, issues, and progress of the war. Films on agriculture, education, our Allies, the home front, and our Armed Forces are described and the sources of distribution given.

These films are available free for showing at any public meeting with a serious purpose.

To Strengthen Ties with Mexico

FORT WORTH, TEXAS—DONDE LA HOSPITALIDAD REINA.—*Fort Worth Chamber of Commerce. Harold S. Foster, Secretary, Mexican Affairs Committee, Fort Worth 2, Texas.* 1944. *Illus.* 12 *pp.*

This little booklet, written entirely in Spanish and attractively illustrated, is addressed to our neighbors "south of the border." Outlining the transportation facilities, industry, civic life, history, and the Mexican population of Fort Worth, it is designed to bring about closer business relations and stronger ties of friendship with Mexico. Available free to those interested in furthering good relationship with our Southern neighbor.

Issuing Revenue Bonds

FINANCING THROUGH REVENUE BONDS.—*By S. B. Robinson. Report No. 107. National Institute of Municipal Law Officers, 730 Jackson Place, N.W., Washington 6, D. C.* 1944. 55 *pp.* $2. *Free to members of NIMLO.*

Touches upon some of the practical problems of business and finance which arise in connection with the issuing of revenue bonds. Points out the statutory limits on the amount of indebtedness, the necessity for the approval of the voter, and the fundamental requirements for a revenue bond issue. An outline of the actual procedure follows this introduction, covering such important topics as the official statement; interest rates, maturities, and redemption revenue bonds as negotiable instruments; competitive bidding vs. privately negotiated sales, etc.

War and Post-War Public Works

PUBLIC WORKS ENGINEERS' YEARBOOK: 1944.—*American Public Works Association, 1313 East 60th St., Chicago 37, Ill.* 1944. 320 *pp.* $3.75.

This volume contains the proceedings of the 1943 Public Works Congress held in Chicago late in October of 1943. This conference was devoted to the provision of essential public services in wartime, as well as long-range planning of capital improvements in the post-war period. Here the administrator and engineer may also read of other communities' problems and how they have been approached and solved, of advances made in the fields of sanitation, planning of public works, water works, street and highway maintenance, sewage, etc. Included, as in former volumes, is an alphabetical and geographical listing of the names and addresses of members of the Association.

Improving Los Angeles' Business Districts

BUSINESS DISTRICTS.—*Regional Plan Commission, County of Los Angeles, Los Angeles, Calif.* 1944. *Illus.* 31 *pp.*

Five weak points in the Los Angeles business districts are pointed out in this analysis by the Regional Plan Commission of Los Angeles County—accessibility, circulation of vehicular and pedestrian traffic, terminals, appearance, and merchandising. The commission holds that whereas public agencies are responsible for improving most of these conditions, it is up to the business men to agree on basic needs and plans, and to make their wishes known to the responsible authorities. It suggests routing through-traffic around the business areas to relieve congestion, providing more terminals for private automobiles and mass transportation units, and carrying out an over-all plan to which each business man must conform in developing his own property.

Other Reports Received

KANSAS CITY, KAN.—*The Annual Report of the Board of Public Utilities,* 1943. 32 pp.

MILWAUKEE, WIS.—*Planning Milwaukee,* 1943. 23rd Annual Report of the Common Council. Norman N. Gill, Editor. Illus. 96 pp.

NEW HAVEN, CONN.—*Finances of the City of New Haven:* 1920-1943. Report No. 32. August 1944. New Haven Taxpayers Research Council, Inc., 839 Chapel St., Room 11, New Haven 10, Conn. 24 pp.

BISMARCK, N. D.—*Directory of North Dakota Municipal Officials:* 1944-1945. League of North Dakota Municipalities, Box 358, Bismarck, N. D. 35 pp.

ROCHESTER, N. Y.—*Your City Government.* Sixth Annual Municipal Report. For the Year Ending December 31st, 1943. Division of Public Relations, Department of Commerce, Rochester, N. Y. Folder.

WYANDOTTE, MICH.—*Fiftieth Annual Report of the Department of Municipal Service:* 1893-1943. 36 pp.

JOBS, TAXES, HOUSING, FACTORIES—NEED PLANNERS THINK OF SUCH THINGS?—By Herbert S. Swan, 261 Broadway, New York 7, N. Y. 1944. 11 pp.

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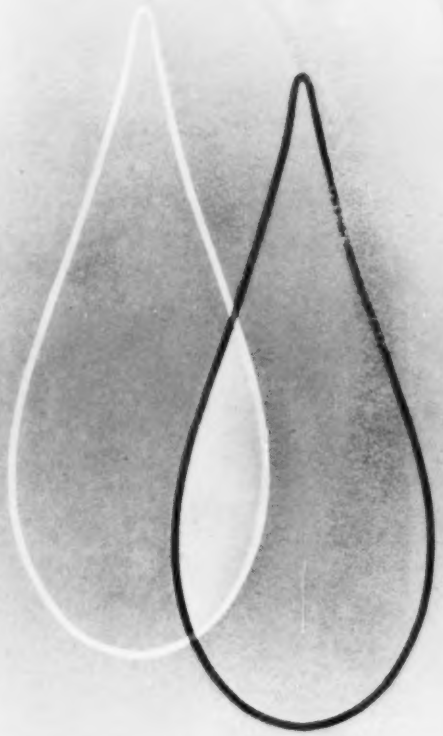

Potable and sanitary water is a vital necessity to soldiers fighting near germ-infested streams and to the civilian population of war-torn areas. It is equally important to our communities where the water supply and sewage disposal systems are endangered by industrial wastes and disrupted by violent storms.

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News and Illustrations

Items of Interest to City, Town and County Officials and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

Hayes to New York Office Hydraulic Development

Reginald F. Hayes has been appointed General Sales Manager of the Hydraulic Development Corp., 50 Church St., New York 7, N. Y., and will be located at the New York office.

Reg. Hayes

Mr. Hayes is Secretary of the company and since 1936 has been in charge of the New England territory, promoting the sale of HYDRO - TITE and FIBREX.

Fairbanks, Morse Purchases Pomona Pump Co.

Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago, Ill., recently purchased the Pomona Pump Co. Division of the Joshua Hendy Iron Works, Sunnyvale, Calif. Announcement of the sale was made simultaneously by R. H. Morse, Jr., General Sales Manager of Fairbanks, Morse & Co., and Charles E. Moore, President of the Joshua Hendy Iron Works.

The transaction included all physical assets, patents and trade-marks of the Pomona and Westco pump lines. Hereafter the Pomona pumps will be known as Fairbanks-Morse-Pomona and Fairbanks-Morse-Westco line.

No changes in personnel are contemplated and Arnold G. Brown, General Sales Manager of the Pomona Co., is now Assistant Manager of the Fairbanks-Morse Pump Division in charge of Pomona and Westco products. He will also continue to handle distribution.

Mr. Morse pointed out that acquisition of the Pomona Co. will augment the Fairbanks-Morse line of pumps and will be an addition to the pumps now manufactured by them.

Omega Machine Moves to Providence, R. I.

Omega Machine Co., a Division of Builders Iron Foundry announced recently the removal of its factory and offices to 9 Codding St., Providence, R. I., from 3409 East 18th St., Kansas City, Mo. L. E. Harper, President of Omega and a director of Builders Iron Foundry, will make his headquarters in their Chicago office in the Peoples Gas Building, 122 S. Michigan Blvd.

This move brings Builders-Providence Inc., Omega and "Proportioneers, Inc." together, and makes available to Omega many added manufacturing facilities. All three are specialists in their own fields. Omega manufactures a complete line of volumetric and gravimetric dry feeders, lime slakers and related accessories. Builders Iron Foundry's line of flow meters, controllers, gages, is distributed by Builders-Providence, Inc., a division of the parent company. "Proportioneers", as engineers and manufacturers, produce a complete line of liquid chemical feeders employed in the treatment of water and sewage, as well as proportioning devices for industrial process blending and treating.

S. C. Johnson Announces Sales and Research Appointments

S. C. Johnson & Son, Inc., Racine, Wis., announced recently the following appointments to its sales and research divisions in preparation for expanded postwar operations.

Ray W. Carlson has been made Sales Manager with headquarters at Racine. Mr. Carlson, former Central Divisional Manager, will supervise the operation of the field sales organization under the direction of the Sales Vice-President, P. M. Petersen.

John H. Hurley, former Manager of the Maintenance Paint Division, has been made Manager of the Product Finishes Department. He will direct merchandising activities on behalf of industrial waxes, Wax-O-Namel product finishes, water repellants for the textile industry, and protective coatings for farm perishables.

James W. Barrett, Jr., has been appointed Manager of the Maintenance Products Department. Formerly in charge of Large Consumer Wax Division, he will direct merchandising activities covering maintenance waxes and Wax-Fortified Paints for industrials and institutions, and water repellants for laundries and dry cleaners.

Walter A. Bridgeman, new Manager of Field Research in the Research and Development Division, will direct all activities in connection with field research on new and established products.

Harvey W. Blankenship, formerly Advertising Manager for Graver Tank & Mfg. Co., Inc., Chicago, Ill., has been appointed Industrial Sales Promotion Manager. Mr. Blankenship will devote his efforts to the advertising and promotion of all products going into the industrial and institutional fields.

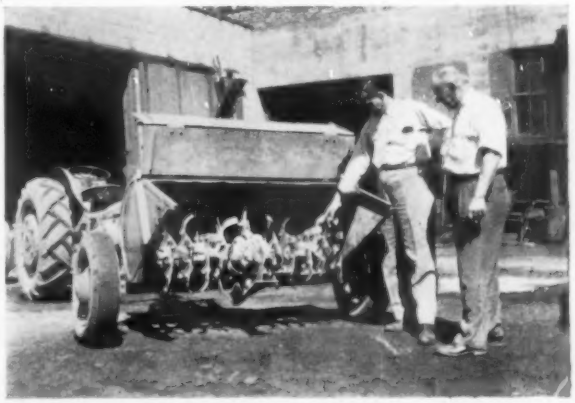
Machine for Soil Mixing

Municipalities that have a variety of soil mixing to do will be interested in the "Seaman Tiller" manufactured by Seaman Motors, Milwaukee, Wis.

The equipment provides a variety of uses to municipalities, especially in airport and street construction work, where mixing operations for soil-cement, bituminous, and other soil-stabilization processes are necessary; and for loosening soil, or mixing in any pulverized soils in clay fields to secure a better and more dense compaction. For municipal parks and grounds around public buildings it can be used to prepare a finely pulverized level seedbed in one operation.

A spectacular use for the "Seaman Tiller" was found recently in Milwaukee, Wis., where the Park Commission used the machine to clear broken glass and other dangerous debris from the bathing beaches. The "Seaman Tiller," operated with the hood open, dug and threw to the surface material that was buried as deep as six inches. Collecting the debris for removal was an easy matter after that.

Important features of the machine are the resiliently mounted motor assembly which tilts and rises when it comes in contact with immovable obstacles, and "shock-cushioned" non-breakable tines.



Harry Seaman (left) and Lacy Crolius looking over a "Seaman Tiller"

PHOTOGRAPH BY *The Milwaukee Journal*

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OVER 1,000,000 DOLLARS of Fisher Electronic Equipment is now used by the Armed Forces. Why? Fisher Equipment will perform under the most strenuous service and is easy to maintain. For the same reason you should select the FISHER M-SCOPE EQUIPMENT. You will receive the same reliable merchandise which we supply to the U. S. Armed Forces.

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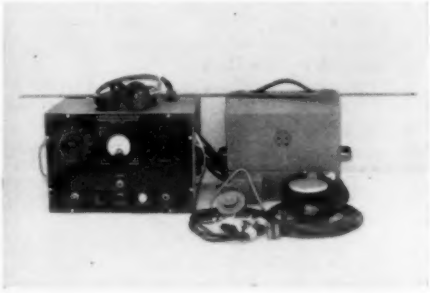

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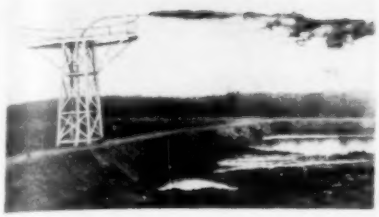

This ejection tower of the "Transporter" is discharging wastes out over drying lagoons.

Pneumatic Ejector for Conveying Bulky Materials

A sewage-treatment plant in Minnesota is making use of a "Transporter" manufactured by Yeomans Brothers Co., 1433 N. Dayton St., Chicago 22, Ill., for handling all settled domestic sewage and packing house wastes from their plant. The "Transporter" discharges this material over drying lagoons where it is burned when dry. Any municipality may similarly convey sewage sludge, water treatment chemicals, sewage screenings, and industrial wastes that come to its treatment plants through pipelines and which cannot be readily handled by centrifugal pumps.

The "Transporter" consists of a conical hopper set above the inlet valve body at the top of the machine. With material at a pre-determined level the control begins to operate. Loading stops within a few seconds, the inlet flap valve is closed, and the main air supply valve admits compressed air. When the receiver is loaded air pressure forces the contents of the receiver down toward the discharge. Once this action starts the automatic air valve closes and the air is used to complete the discharge and scavenge the discharge line. After the line is clear the loading operation starts again.

The equipment is automatic, making necessary only supervisory attention to its operation. It contains no moving parts that will come in contact with material being transported.

Units range in sizes from 10 to 200 cubic feet displacement. Compressed air for its operation can be furnished by an existing air supply or by a rotary air compressor.

Memphis Engineers' Club Honors Col. LePrince

The Engineers' Club of Memphis recently honored the achievements of one of its fellow engineers. A meeting was held as a tribute to Col. Joseph A. LePrince, citizen of Memphis and engineer who has devoted his life to the control and eradication of yellow fever and malaria. It was his 69th birthday, and in recognition of his lifelong work in the field of public health, the Engineers' Club conferred on Col. LePrince its honorary membership. He is the second man to be presented with an honorary membership during the club's thirty years of existence.

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The old-fashioned vote-counting process in many communities will continue on through the night so that in all close contests where the old-fashioned paper ballot is involved the definite results may not be known for several days or perhaps weeks.

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We invite organizations and individuals of all communities, having paper ballots, to write for descriptive literature relating to the advantages of the Modern, Mechanical Way of Voting.

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Jamestown *New York*

Lloyd Reid Joins International Salt

Lloyd B. Reid, former Traffic Engineer of Detroit and an authority on highway engineering and highway management, has joined the International Salt Co., Inc., Scranton, Pa.

Lloyd Reid

In his new post, Mr. Reid will assist in a program to maintain highways free of snow and ice during the winter months by spreading sugar action rock salt during storms. This melts the snow and ice, preventing it from bonding to the road surface, and simplifying the task of highway and street departments in keeping roads open.

Rock salt is used by cities such as New York, Syracuse, Cleveland, Detroit and many others in the snow belt. Road officials have found it saves money on snow clearance work, helping to remove snow that formerly had to be plowed or shoveled by hand. The sugar action of the salt often clears the highway after light snowfalls, without plowing. With heavier falls one trip of the plow, coming after the salt truck, is generally sufficient to scrape down to the bare surface.

Various groups of road users will be invited to cooperate in this ice control program, along with local business associations. Pictures and stories, many of them by road commissioners describing their experience with rock salt, will be directed to magazines and newspapers in an effort to present the control benefits to as wide an audience as posible.

Kennedy Valve Elects V. P. and Sales Manager

Leon H. Marsh has been elected Vice-President and Sales Manager of The Kennedy Valve Mfg. Co., Elmira, N. Y., by the Board of Directors.

Mr. Marsh's association with the organization covers a 25-year period. For many years he was Assistant Sales Manager and was made Acting Sales Manager in 1941 on the death of Clarence H. Kennedy who had been Vice-President and Sales Manager. In 1942 Mr. Marsh was promoted to Sales Manager.

Mr. Marsh will be in charge of all sales and public relations of the company which manufactures iron-body and bronze valves, malleable iron, bronze, cast iron pipe fittings, fire hydrants, and various valve specialties.

WATER AND SEWAGE TREATMENT EQUIPMENT

Accelators • Aerators
Accelo-Filters • Activators
Chemical Feeders
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Filter Plant Equipment
Hydraulic Controls
Lime Slakers
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Sewage Samplers
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INCORPORATED
Formerly INTERNATIONAL FILTER CO.
325 W. 25th PLACE • CHICAGO, ILL.

Electrical Corrosion Control

Proven on hundreds of tanks from coast to coast, Rusta Restor—the cathodic (i. e. electrical) method maintains steel tanks in an "electro-negative" state that not only prevents rusting but gradually removes the effect of any earlier rusting.

Rusta Restor is modest in first cost and uses the current required by only one light bulb—at safe low voltages. Each installation engineered to the individual tank and water conditions. Electrode, or the more newly developed electrodeless type that avoids any fouling due to icing. Detailed description of interest to engineers and operating men sent on request. Write today.

RUSTA RESTOR
Division of
THE JOHNSTON & JENNINGS CO.
861 Addison Road Cleveland 14, Ohio

★ ★

Fresh, high quality broom fibres last longer

The longer mileage you obtain from fresh broom fibres means less time-taking refilling of the broom core and valuable man-hours put to an extra use. The use of fresh, high-quality fibres in your mechanical sweeper is sound economy these days.

We are able to service every need in all types and sizes. We would be happy to receive your request for samples and quotations.

AFRICAN BASS FIBRES

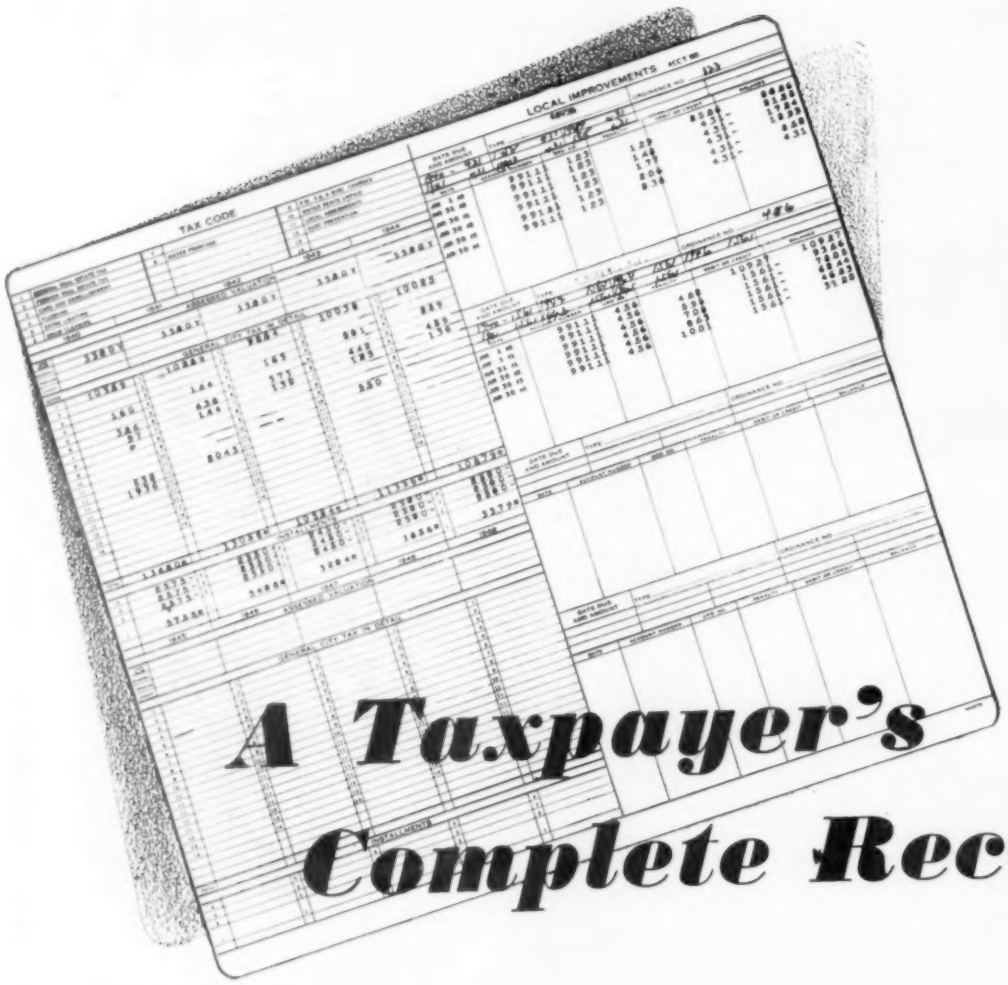
INDIA PALMYRAH STALKS

MOUNTAIN HICKORY SPLINTS

STEEL WIRE SWEEPER STALKS

The OTTO GERDAU CO.

82 Wall Street, New York 5, N. Y.



A Taxpayer's Complete Record

The tax ledger card of the City of Rochester, New York, contains the record of transactions of every tax account from its beginning. This unit tax ledger serves as the central instrument of the entire tax accounting system, the annual tax roll being merely for reference. The face of the sheet provides for entry of the details of the general city tax and of local improvements. The reverse side shows by years the penalties, payments and balance. Each card is a complete tax picture abolishing the complications of a tax search. The computing and the posting are performed by the Sundstrand Automatic Tax Computing and Accounting Machine which is designed to perform the tax work of municipalities and counties of any size.

Let us give you full particulars

UNDERWOOD ELLIOTT FISHER CO.

Manufacturer of the Famous Sundstrand Municipal Accounting Machine

One Park Avenue — New York 16, N. Y.

Alexis Diakoff Appointed Alco Diesel Engineer

Alexis J. Diakoff, former head of the Mechanical Engineering Department at the University of North Dakota, has been appointed consulting engineer of the Diesel Engine Department of the Schenectady Plant of the American Locomotive Co., 30 Church St. New York, N. Y., L. B. Jackson, Director of Engineering, Diesel Division announced.

Alexis J. Diakoff

In his early career, Mr. Diakoff was chief engineer of the submarine "Burevestnik" of the Russian Black Sea Fleet. When the fleet was evacuated to North Africa he was put in charge of consultation and operation of Diesel and gas power plants in Tunisia and Algeria. He was later connected with the Rennault Works near Paris, France, where he tested installations and was designing engineer of Diesel engines.

When he came to the United States in 1923 he was associated with the Ford Motor Co. and later the Detroit Edison Co. as a designing engineer.

He started at the University of North Dakota as an assistant professor of Mechanical Engineering and rose to head of the department. While at North Dakota he took a leave of absence to do consulting work in the Diesel engineering field in southern California and Arizona.

Mathieson Opens New Plant

A new plant at Lake Charles, La., for the production of ammonia is announced by George W. Dolan, President of The Mathieson Alkali Works (Inc.), 60 E. 42nd Street, New York 17, N. Y. This is one of the largest plants in the country producing ammonia from natural gas.

Built by the Defense Plant Corporation and operated under lease by Mathieson, the new plant is fully engaged in war production, the ammonia being used to produce high explosives. After the war, it is expected to manufacture chemical fertilizers for southern farmers and anhydrous ammonia for refrigeration and water treatment.

In addition to ammonia, Mathieson produces caustic soda, soda ash, and synthetic salt cake at Lake Charles.

G-E to Centralize Electronics at Syracuse

The General Electric Co., Schenectady, N. Y., has completed plans to centralize activities of its Electronics Department, under the direction of Dr. W. R. G. Baker, Vice-President, in an industrial development at Liverpool, on the outskirts of Syracuse, N. Y., according to Gerard Swope, President of the company, at a recent dinner. At present, these electronic activities are carried on in several cities, and it is the company's desire to put them all in one plant.

Construction of the plant on a 150-acre plot is expected to begin as soon as wartime restrictions are lifted and it is estimated that the new plant will be ready to operate about 18 months after it is started. The development will cover about one-fourth the area occupied by the Schenectady Works of the company. The new plant will include an administration building, research laboratory, and assembly shops.

The company also announced that Lieut. Col. F. D. Crowther, Sales Manager of the Lighting Division, has been awarded the bronze star medal for meritorious performance of duty in combat. The medal, created by Congress in February of this year for heroism or meritorious service not involving air flight, was conferred on Col. Crowther shortly before his promotion from Major.

The citation was awarded "For performance of meritorious service as executive officer of the Signal Office in combat on Bougainville Island, Solomon Islands . . . supervised and directed the construction and operation of a most efficient signal communication system, and during actual combat, in the absence of the signal officer, performed the duties of signal officer and executive officer in a most outstanding manner."

QUICK SERVICE on "TOUGH" and UNUSUAL JOBS

YOUR Automotive Jobber!

And they don't have to be purely automotive "tough" jobs, either. He has the warehouse stock (over 100,000 parts), the stock of tools, equipment and accessories, and complete machine shop facilities to handle many other service and maintenance jobs requiring prompt, intelligent attention. It may be on pumps, compressors, electric motors, diesels. Whether you need the mechanical service itself, or the tools or equipment for it—try your automotive jobber. His wide experience and services can be very useful to you!

You can depend upon your Automotive JOBBER!

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THE COMPLETE ASSOCIATION

Devoted to maintaining and improving the Quality Standards of Service Parts, Equipment and Accessories manufacture, distribution and installation in America's thirty million automotive vehicles, and millions of internal combustion engines, and mechanical equipment.

NATIONAL STANDARD PARTS ASSOCIATION
35th Floor, 8 South Michigan Avenue, Chicago 3, Illinois

IMPORTANT

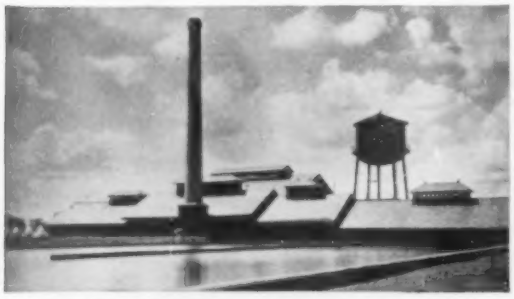
Public Health must be maintained!

The necessity of maintaining public health in war time is self-evident. Municipal officers in charge of water purification and sewage disposal have a vital responsibility in guarding the nation's health which should not be underestimated as a contributing factor to final victory.

However, the problems of maintaining public health are *becoming increasingly difficult in the face of material shortages and transportation handicaps.* General's "Alum" will help do the job right. But to ease the situation in regard to *Aluminum Sulfate* as much as possible, won't you place your orders as far ahead as you can so that we may schedule our production on an efficient basis.

Why Most American Cities Prefer General Chemical Aluminum Sulfate

General Chemical Aluminum Sulfate is an especially developed "Alum." High quality and constant uniformity have given it a *time-tested* reputation among water works engineers and sewage plant operators, who know its reliability through experience.



★ FOR WATER WORKS

1. Makes water crystal clear.
2. Longer filter runs are obtainable.
3. Is economical, used properly will conserve chlorine supplies . . . because it does not require oxidation to make it effective.
4. Superior in tests against other coagulants.
5. High in quality, its constant uniformity can be counted upon.

★ FOR SEWAGE PLANTS

1. Clean, easy to handle and economical to use.
2. Simple application, requires only low cost feeding apparatus and minimum attention.
3. Clear, colorless effluents are possible.
4. Precipitated sludge digests readily.
5. Treated digested sludge dries quickly, without odor.

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Technical Service Offices: Atlanta • Baltimore • Boston • Bridgeport (Conn.) • Buffalo • Charlotte (N.C.) Chicago • Cleveland • Denver • Detroit • Houston • Kansas City • Milwaukee • Minneapolis New York • Philadelphia • Pittsburgh • Providence (R. I.) • St. Louis • Utica (N. Y.)

Pacific Coast Technical Service Offices:
Los Angeles • San Francisco • Seattle, Wenatchee and Yakima (Wash.)

In Canada: The Nichols Chemical Co., Ltd. • Montreal • Toronto • Vancouver

A reminder that bulldozers must be babied these days.

Baby Your Bulldozer

Bulldozers are playing an important part in winning the war on every front including the building of the Alcan highway and Canol pipeline, rebuilding airstrips at Saipan and in New Guinea, and battlefront action in India, Burma, Normandy and Sicily. Here at home they have been responsible for maintaining the smooth flow of materiel for a nation at war. The accomplishments here have been even more remarkable because they have been accomplished in spite of extreme limitations on replacements and repairs.

The first consideration in maintaining a bulldozer in good condition is its operation or handling. An experienced operator can judge the depth of his cut immediately by the sound of the motor. As the engine slows down or approaches a stall, the good operator inches up the blade, relieving the motor and allowing smooth performance. He will inch the blade up and down slowly as the tractor moves through a cut, preventing hills and valleys and leave, instead, a smooth, even surface. In making a pass through a cut, an operator should keep the blade sufficiently full so that dirt is visible at all times over the top. This enables him to fill in low spots ahead.

It is important that the tractor be level when the cut is started. In uneven ground, an area may be leveled before making a cut by slowly dragging the blade backward over the rough section. The tractor should be in motion before the blade is lowered to a cutting position.

With regard to operation here are a few suggestions for reducing costs and increasing yardage. A good bulldozer operator is a definite asset. He not only gives the machine the considerate operation it deserves, but he increases production by using his head as well as the blade. For example, he will follow the same path on successive trips over long hauls, so that dirt spilling from the edges of the blade forms a windrow on either side. This keeps more dirt ahead of the blade. He knows that drifting dirt down hill increases yardage, while uphill work sharply decreases production.

Preventive maintenance is part of proper bulldozer operation. A planned program of checking and servicing bulldozers will keep the blades producing at top speed without breakdowns. Most important is lubrication. Lubricate regularly with good grade lubricants following the manufacturer's instructions.

David Waxman Dies; Shell Oil Official

David Waxman, Manager of the Asphalt Sales Department of the Shell Oil Co., 50 W. 50th St., New York 20, N. Y., and a director and former chairman of the executive committee of The Asphalt Institute, 801 Second Ave., New York 17, N. Y., died on August 29 at the age of 46.

He became associated with the company in 1926 as an asphalt salesman at its New Orleans office. He has been Manager of the Asphalt Sales Department since 1929.

RUSTOP
YOUR STEEL TANKS AND STANDPIPES

Corrosion . . . the worst "enemy" of your steel tanks and standpipes can now be licked completely and permanently . . . with RUSTOP. RUSTOP is a cathodic method that removes old rust on submerged surfaces and keeps new rust from forming. It is a permanent protection . . . installed without interruption to service . . . at small cost . . . operates for only a few cents per month . . . eliminates need of sandblasting, scraping or painting. Is Guaranteed. Safeguard your tank. Cut down on tank repairs and maintenance. Investigate RUSTOP today.

NO PAINT
NO CHEMICALS

RUSTOP ELECTRO RUST PROOFING CORPORATION
Dayton 10, Ohio

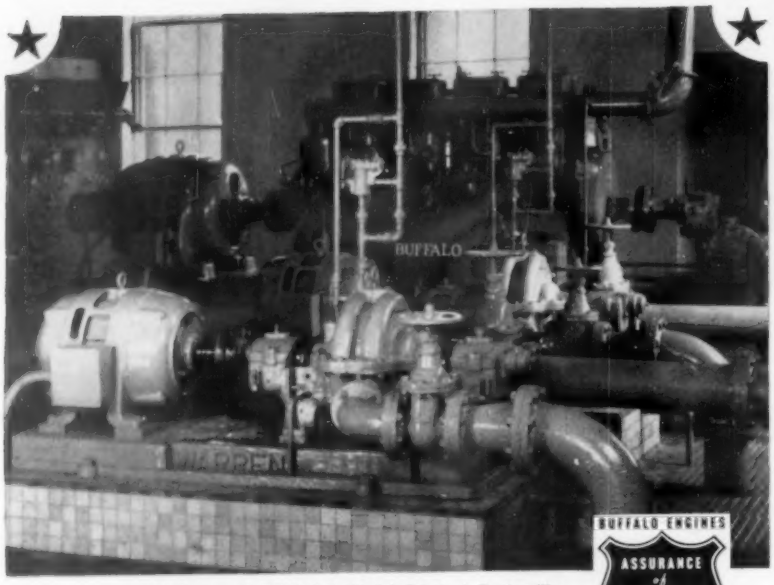
Police-Traffic Street-Highway and Maintenance Departments

FUNCTION BETTER AND MORE SAFELY EQUIPPED WITH

Big Beam
PORTABLE ELECTRIC HAND SEARCHLIGHTS

Invaluable for signals at highway accidents, wrecks, spotting auto licenses, illuminating hazardous approaches for night work, emergency work, maintenance work on cars, trucks, busses. Big Beam carries light where you need it . . . when you need it. Portable, handy to use . . . inexpensive, yet sturdy and long-lived. Big Beam is indispensable to Police, Highway and Maintenance Departments in any emergency, and to Fire Departments in penetrating smoke and other hazards. Throws beam 2500 feet and more and, by use of snap-on lens, gives the same volume of light over a wide area. Storage battery or dry-cell models available. Write today for catalog and full description of Big Beam Portable Electric Hand Searchlight.

U-C LITE Mfg. Co.
Dept. B • 11 E. Hubbard St. • Chicago 11, Ill.



Installation of BUFFALO Model RA-8 at Centerville-Osterville Fire District, Cape Cod, Mass. 8 Cylinders with dual drive and a 75 KW Fairbanks Morse generator at the gear end and a 50 HP Warren pump at the flywheel end.

Make room TO GROW IN

When laying out an installation, it's good practice not only to plan space for stand-by motor generator or pumping sets, but also to let there be room for the added equipment that future growth may demand. Ask any operating man whose motors are crowded in a narrow space between walls.

However, if the stand-by motor is a BUFFALO, things are not too bad. Years of designing motors for this service has resulted in their being most conveniently arranged for inspection and maintenance of wearing parts. Starting can be either manual, remote, or full automatic.

And the big point about Buffalo engines is their unfailing reliability—recognizable from a reading of their specifications and proven by years of service.

Engineers are invited to write for Specification Sheets for their files and to request any information that our experience in varied installations may afford.

BUFFALO GASOLENE MOTOR COMPANY

DEPT. AC-104 BUFFALO 13, N. Y., U. S. A.

BUFFALO ENGINES
ASSURANCE of PROTECTION

BUFFALO ENGINES — 100 H. P. THROUGH 750 H. P.— IN GENERATOR AND PUMPING SETS FOR WATER WORKS — AIRPORTS — COMMUNICATIONS — FLOOD CONTROL — HOSPITALS — INSTITUTIONS — MINES — MOVABLE BRIDGES — THEATRES — SEWAGE PLANTS.

APCO-V-APCO PRIMERS

AUTOMATIC
POWER
OR
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AIR RELEASE VALVES

FOR
FILTER PIPE LINES
DISTRIBUTION LINES
AND OTHER USES
17 TYPES

VALVE AND PRIMER CORPORATION

Room 366—111 W. Washington St.
CHICAGO, ILL.

for MAXIMUM FROST PROTECTION

Ford Double-lid Meter Box Covers have a dead-air space in the neck and a sloping skirt which cut down heat loss to the minimum. They are recommended for water meter settings where climate and soil conditions demand maximum protection against freezing.

Information on request.

FORD *Meter Box Co.*

WABASH, INDIANA

New Sales Office for Superior Engine

The Superior Engine Division of the National Supply Co., Pittsburgh, Pa., has announced the opening of a new sales office at 315 Main St., Ames, Iowa. At the same time it announced the appointment of Charles B. Sherman as District Manager of the new office.

Charles B. Sherman

Mr. Sherman for many years was engaged as a contractor in building municipal power plants and water works systems. He also was western district manager for the H. Channon Co., Chicago, Ill., and for ten years headed the Iowa state sales offices of the Electric Machinery Mfg. Co., Minneapolis, manufacturers of large synchronous motors and generators for Diesel and steam engines.

Since 1941, Mr. Sherman has been chief expediter for the Busch-Sulzer Bros., Diesel Engine Co., St. Louis, Mo.

A Fire-Fighting Jeep

Engineers of the Willys-Overland Motors, Toledo, Ohio, have developed and tested in their plant a jeep fire-fighter. The tests conducted over the past 18 months have proved that the jeep qualifies for a place in post-war safety plans as an auxiliary unit for urban and rural fire equipment, and for forest fire fighting.

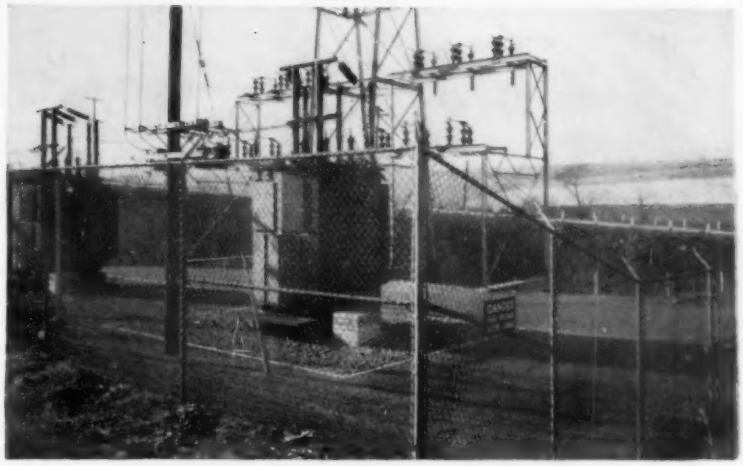
During exhaustive tests in their plant, the jeep has answered 34 emergency alarms bringing fires under control before any serious damage was done. It was driven on elevators, climbed stairs and raced inclines in order to reach its destination.

The jeep is outfitted with shiny brass and copper accessories and is equipped with 350 feet of 2½-inch hose, two nozzles, two extinguishers, a 500-gallon per minute pump, and two lengths of suction hose for drawing water from emergency supplies.

Economy Pumps Elect Vice-President

L. G. L. Thomas, General Manager of Economy Pumps, Inc., Hamilton, Ohio, announced recently the election of E. E. Quimby and Frank H. Gaylord to positions of Commercial Vice-Presidents of the company.

Mr. Quimby will specialize in sales transactions for very large projects which are too involved for a resale agency such as flood control. Mr. Gaylord will direct the sales and promotion of the company's new Wholesalers' Division.



FENCE... should be a part of every plan!

WHEN you plan any new public project, remember that fence is an important consideration. Almost every type of improvement needs the protection of good, strong fence. *Power Plants* and *Water Works* need protection from vandals. *Swimming Pools* and *Stadiums* need fence to control admissions. *Playgrounds, Parks* and *School Yards* need fence to protect children from traffic.

It will pay you to include fence in your original plans. And you'll be sure of the finest if you specify Cyclone Fence. Cyclone is the fence that has protected thousands of America's war plants. It is the world's most widely used property protection fence.

Let our trained engineers help you. They are available for consultation without obligation to you. They'll help with plans and the selection of the proper types of fence and gates. And we'll make recommendations—also without obligation to you. Write us about your problems.

SEND FOR FREE 32-PAGE BOOK

In the meantime, mail the coupon for our 32-page book on fence. Full of facts and specifications. Profusely illustrated. Complete information on different types of fence, gates, athletic field equipment, etc. Whether your plans are to be carried out now or in the future, you need this free book.

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Please send me, free of charge, your 32-page book on Fence.

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Gate Valve Operation

THE EASY WAY. MINUTES INSTEAD OF HOURS, TO CLOSE YOUR BIG GATES. SAVES 80% OF MANPOWER AND TIME.

See a demonstration near you.

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Cast Iron Pipe

PLAIN CAST OR SPUN CENTRIFUGAL

Cast Iron Pipe and Special Castings, Bell and Spigot, Flange, Flexible Joint, Culvert, Milled and Plain End Tubes, Cylinders, Flanged and Bell and Spigot Fittings, High Pressure Fire Service Pipe, Warren Short Body Specials, Threaded End Pipe.

Size 2 to 84-inch

Pipe manufactured in accordance with standard specifications adopted and approved by water works associations and engineers.

Warren Foundry & Pipe Corp.
11 Broadway, New York City

Warren Pipe Co. of Massachusetts
75 Federal Street, Boston, Mass.

CONNERY'S HEATING KETTLE

Style B-2

reduces street maintenance costs by heating tar and asphalt with SPEED AND SAFETY.

This oil burning kettle is equipped with steel roller-bearing wheels. Sizes: 30, 80, 110 and 165 gallons.

Write for catalog showing our full line of tar and asphalt heating kettles, spraying attachments, pouring pots, etc.

Connery Construction Co. 2nd & Luzerne Streets, Philadelphia 40, Pa.

CENTRIFUGAL PUMPS
FIRE HYDRANTS
A.W.W.A. GATE VALVES

Manistee single-stage, double-suction pumps, 75-20,000 g.p.m. capacity

Manistee multi-stage pumps, 50-3500 g.p.m. capacity with heads up to 1600 feet

Write for Bulletins

MANISTEE IRON WORKS CO.
MANISTEE MICHIGAN

ANTHRAFILT

A Filter Medium For All Purposes

ANTHRACITE EQUIPMENT CORP.
101 Park Ave. New York

H. G. Turner Research Engineer
STATE COLLEGE, PA.

New President for H. W. Clark Co.

Donald M. Clark, President of H. W. Clark Co., Mattoon, Ill., died recently at the age of 47. Mr. Clark had been associated with the company for over 20 years and succeeded his father, H. W. Clark, founder of the company, to the presidency in 1931.

Horace P. Clark

Horace P. Clark, another son, has been elected to fill the presidency. He was former secretary and sales manager and had served the company in various capacities in the factory and field over the past 15 years.

American Can to Build New St. Paul Plant

American Can Co., Toledo, Ohio, has completed plans for the construction of a new manufacturing plant on a 49-acre site in St. Paul, Minn. This is to be started as soon after the war as "labor and material are available," Gordon H. Kellogg, Vice-President, announced recently in Chicago.

The plant will represent an investment of about $6,500,000 and will employ about 1,000 people, more than double the number engaged in the present St. Paul plant.

Striped Rubber Coat for Safety

A new safety feature has been introduced in the manufacture of rubber coats used by fire and police departments which should help reduce accidents and deaths among the uniformed personnel of municipalities.

Midwestern Manufacturing Co., Mackinaw, Ill., recently designed and is now producing coats of yellow striped safety cloth. The stripes are molded into the rubber and provide high visibility under all conditions, especially rainy weather. Exhaustive tests have shown that yellow is a color more visible during both day and night than any other color, and these stripes help make the men stand out from their surroundings and reduce the possibility of accidents. Tests also show that the yellow rubber, like the black, retains its natural color and has the same durability.

The yellow stripes woven into this rubber coat increase its visibility both day and night.

These coats are in use by municipal fire departments, police departments and state highway departments especially for patrol work. They are completely waterproofed, long-lived, free fitting and very flexible in all climate temperatures.

New Clay Pipe To Keep Basements Dry

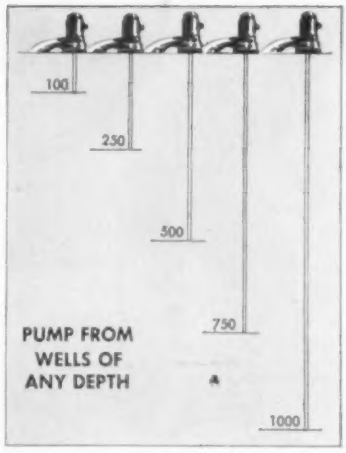
One common cause for dampness and wet floors in building basements is the lack of adequate drainage around the foundation and the walls. Proper outside drainage can be provided through the use of a newly-designed vitrified clay skip-pipe, offered by the Robinson Clay Product Co., Akron, Ohio.

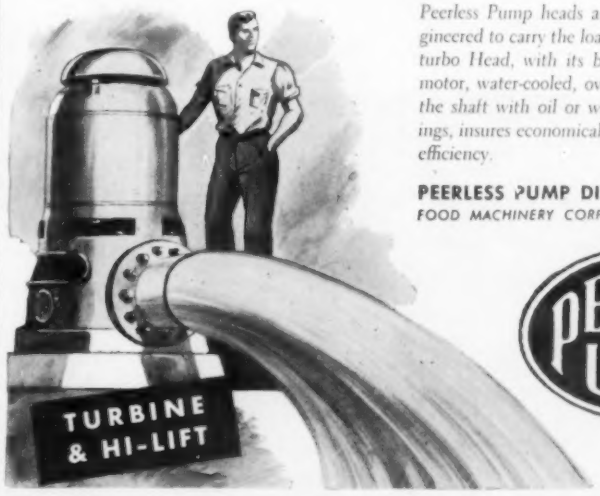
This pipe prevents seepage in two ways: part of the water collects in the cradle which is the top of the pipe, and is discharged into the pipe through fixed slots at each joint . . . the balance of the water enters the pipe through open joints maintained by an arrangement of lugs in the bell of the pipe. This lug arrangement also insures perfect alignment providing a smooth flow line and eliminating the possibility of silt accumulation. When flowing at capacity, skip-pipe permits faster discharge than full-round pipe of corresponding size.

TAP
LOWER WATER LEVELS
with a Peerless

Water levels are receding in many parts of America. This critical situation was discussed most forcefully in a recent issue of The Saturday Evening Post. It's a problem that confronts many pump users—perhaps you.

To tap the lower water levels you need a Peerless Deep Well Pump. Look ahead. Make provision for a dependable source of water for years to come by going deeper for your water. Peerless Pumps will lift water from any depth and can be installed to meet the receding water levels. Some are installed more than 900 feet deep.





Peerless Pump heads are designed and engineered to carry the load. The Peerless Maturbo Head, with its built-in, hollow-shaft motor, water-cooled, over-size bearings and the shaft with oil or water-lubricated bearings, insures economical operation and high efficiency.

PEERLESS PUMP DIVISION
FOOD MACHINERY CORPORATION

PEERLESS PUMPS

301 W. Ave. 26, Los Angeles 31, Calif. • 1250 Camden Ave. S.W., Canton 6, Ohio • Other Factories: San Jose 5, Fresno 16, Calif.

PRECALKED

Saves TIME! LABOR! MONEY!

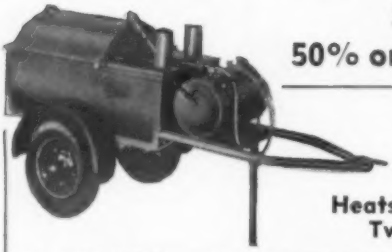
This permanent pipe can be laid by unskilled men as fast as your best machine can dig the trench.

The joint materials — pure lead and redwood wedges — are placed in the pipe bells at the McWane foundry. No tedious lead melting and pouring. Just "socket the spigot and calk." Simple! easy! quick! and permanent! for pipe and joint are one.

Prompt shipments!

McWANE CAST IRON PIPE CO.
BIRMINGHAM, ALA.

McWANE 2" CAST IRON PIPE



Saves 50% on Time & Fuel

The Aeroil
HEET-MASTER
Heats Tar & Asphalt Twice As Fast

The "HEET MASTER" will produce as much "hot stuff" as two ordinary type oil-burning kettles of the same capacity. Now obtainable on pneumatics. (Also mud guards at slight extra cost.) Send for FREE Bulletin No. 194AC. For Cut-Back and Emulsion Sprayers, Bulletin No. 190A. Oil-burning Lead and Pipe Compound Melting Furnaces, Bulletin No. 232AC. Portable Oil Burner & Torch Outfits, Bulletin 174A. Asphalt Paving Tools & Accessories, Bulletin 312A. Asphalt Paving Tool Heaters and Asphalt Pavement Heaters, Leaflet 171A.

Aeroil Burner Co., Inc., West New York, N. J.
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PICK-UP STREET SWEEPERS
STREET FLUSHERS
STREET SPRINKLERS
BITUMINOUS DISTRIBUTORS
BITUMINOUS MAINTENANCE UNITS
Since 1908
MUNICIPAL SUPPLY COMPANY - SOUTH BEND 23, INDIANA

KWIK-MIX BITUMINOUS NON-TILTING MIXER

An End Discharge mixer for applying cold or hot laid bituminous mixtures to new surfaces, for re-facing and for maintenance. The wide, quick acting discharge gate of the non-tilting drum reduces the time between batches. This light weight, portable unit can be quickly spotted and because of the end discharge advantage the mixer can be conveniently pulled away from the discharged material. Equipment includes two burners which can be easily removed for controlling temperatures

•

Write for Catalog BAC

•

KWIK-MIX CONCRETE MIXER CO.
PORT WASHINGTON . . . WISCONSIN

The American Society for Public Administration

Organized to encourage the science of public administration through discussion and research.

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a consulting and reference tool for—

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- ▲ researchers in diverse fields and at various levels of government, private business, or education
- ▲ teachers and students in the social sciences.

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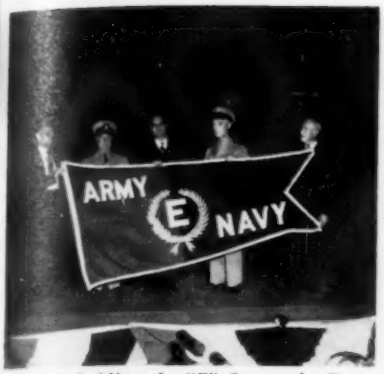
Write for a descriptive folder

American Society for Public Administration
1313 East 60th Street, Chicago 37, Illinois



Officials holding the "E" flag at the Peerless Pump presentation ceremonies are, left to right: A. W. Diesman, veteran employee; Rear Admiral Joseph R. Defrees, USN (ret.), Inspector of Naval Material, Los Angeles District; Clarence Frazier, Vice-President and Manager of the company; Col. Rufus W. Putnam, Corps of Engineers, AUS; John Crummey, Chairman of the Board Food Machinery Corp., San Jose, Calif.

"E" Award to Peerless Pump

The employees of the Peerless Pump Division, Food Machinery Corp., 301 West Avenue 26, Los Angeles 31, Calif., were awarded the Army-Navy "E" on September 1 for their outstanding production record.

Peerless products have been expanded and developed for special applications for all branches of the armed forces. They include the powerful turbine-type pumps used in refloating sunken warships and dewatering dry docks; Hi-life pumps to assure the necessary supply of fresh water for our troops; refueling pumps for combat planes; tanks and Water Buffalos; bilge pumps for landing craft, and specially designed submersible pumps which are serving as part of the equipment of our naval vessels.

Carver Appoints New Representatives

John J. O'Leary has been appointed to represent the Carver Pump Co., Muscatine, Iowa, in the central states and has opened a branch office at 201 N. Wells St., Chicago. Mr. O'Leary was associated with the Independent Pneumatic Tool Co., Chicago, Ill., in a similar capacity for the past eight years.

John J. O'Leary

Carver also announced three new distributors for their company. They are as follows: Acme Contractors Machinery & Equipment Co., Inc., 4221 W. Harrison St., Chicago; the H. B. Faith Equipment Co., 2061 Huffman Blvd., Rockford, Ill.; and Central Supply Co., Danville, Ky.

Personnel Changes at Caterpillar

W. K. Cox has been appointed Assistant General Sales Manager of the Caterpillar Tractor Co., Peoria, Ill., according to a recent announcement made by H. H. Howard, General Sales Manager.

In 1928 Mr. Cox joined the company as a special representative on logging sales and in 1932 moved on to industrial and general sales work. He was assigned to the Advertising Department in 1936 and a year later became Assistant Manager of the Sales Development Division. In 1941 he was appointed Assistant Sales Manager of the Eastern Division and in 1943 became manager. During the early part of the war he spent a year as manager of the expediting division set up to speed the delivery of purchased raw materials.

William S. Ziegler, a field representative since 1929 who was made Assistant Sales Manager of the Eastern Sales Division early in 1944, has now been appointed Sales Manager of that division.

F. D. Haberkorn, representative in Texas and Oklahoma, has been appointed Assistant Sales Manager of the Eastern Division.

Let us make this **FREE TEST** for you

★

Thousands of dollars worth of valuable equipment is damaged every year through the corrosive effects of sewage gas. Yet this costly corrosion can be prevented by proper purification methods.

It's a simple matter to find out whether or not this corrosive action is going on in your own plant. In fact, we'll make the test for you. Write us today and we will send you instructions and a prepared test paper. All you need do is expose this paper to your sewage gas for a few moments, then mail it back to us. By a laboratory evaluation of this test paper we can tell whether or not your gas contains sufficient hydrogen sulphide to cause corrosion.

Make sure — today. Write for this testing material now. There is no charge for this service and you are under no obligation.

Connelly IRON SPONGE & GOVERNOR COMPANY
CHICAGO, ILL. • ELIZABETH, N. J.

SHREVEPORT ADDS NEW HARLEY-DAVIDSONS

SHREVEPORT, Louisiana, recently added five new Harley-Davidsons to its motorcycle fleet, making the complement now eleven. Commissioner of Public Safety, L. K. Barney and Police Captain J. R. Darby are shown inspecting a squad of Shreveport's "finest" proudly mounted on four of the new Harley-Davidsons.

Shreveport, like many American cities, knows that no other method can match these dependable motorcycles for providing peak performance in many important phases of police work. Keep this in mind when developing your future plans for greater traffic safety and more effective law enforcement. Harley-Davidsons have *everything* for widening your department's range of action — providing more frequent and thorough coverage of all beats — and maintaining more complete conformance with traffic and other regulations through more constant evidence of uniformed authority.

HARLEY-DAVIDSON MOTOR CO., Milwaukee 1, Wisconsin

Harley-Davidson Motorcycles are available now for vital police needs. See your dealer.

HARLEY-DAVIDSON

Police Motorcycles

★ ON AMERICA'S FRONT LINES OF ACTION ★

Several pieces of LeTourneau equipment are shown in action on the earthmoving job at Des Moines, Iowa

Earthmoving Equipment Aids Des Moines Water Supply

A large earthmoving job, in Des Moines, Iowa, including the construction of a dam, earthmoving finishing work, grading and similar cleaning up activities has been making use of earthmoving equipment manufactured by R. G. LeTourneau, Inc., Peoria, Ill.

Three Super C Tournapulls and three LeTourneau Carryall tractor-drawn scrapers, two LeTourneau 'Dozers, a LeTourneau Rooter, and a LeTourneau series of nine power control units are at work on this project. This has been undertaken as a means of conserving the present Des Moines water supply and involves the removal of 600,000 yards of dirt to make way for the building of a reservoir; the pumping into it of water from the Racoon River, as well as the hauling of approximately 1,500 feet of sandy clay to the dam site. The dam will be about 80 feet high and 1,800 feet long.

The Tournapulls, rubber-tired tractors which can be operated either off the road or on the road in normal traffic speeds, were driven to the site from another job in Iowa forty miles away.

Advertising Director Named for Friden

The Friden Calculating Machine Co., San Leandro, Calif., realizing the ever-increasing importance of advertising, and its potency in aiding the efforts of its sales organization, has appointed its former Advertising Counselor, H. A. Richardson, as Advertising Director.

H. A. Richardson

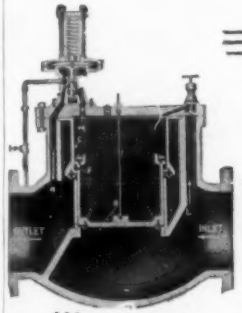
In his new capacity, Mr. Richardson assumes the direction of the advertising policies of The Friden Company. He will continue the preparation of advertising copy, which he has done for the past five years, presenting Friden's automatic calculating machines to the public.

Walter H. Ridley Joins The Foxboro Co.

Walter H. Ridley has joined the Sales Promotion Department of The Foxboro Co., Foxboro, Mass., manufacturers of industrial instruments for measurement and control. He will be located at the head office.

Mr. Ridley was graduated from Massachusetts Institute of Technology in 1928 and since then has been engaged as a designer and sales engineer for two well-known firms manufacturing textile mill machinery. He is well acquainted with production and engineering problems of textile men.

For the past two years he has been in the Boston office of the War Production Board, where much of his work concerned the problems of the textile indus-



SINGLE ACTING SEMI-THROTTLING ALTITUDE VALVE

★

Installed in upstream line to tanks, standpipes or reservoirs, this valve sensitively maintains any desired water level to prevent overflow.

The valve is semi-throttling by gradually closing as water approaches the maximum water level to be controlled. The valve is self-contained without any waste of water from above the valve piston, and is especially desirable for service where a low head is to be maintained against a higher influent pressure.

Write for Specifications

GOLDEN-ANDERSON VALVE SPECIALTY CO.

Fulton Building Pittsburgh, Pa.

Para-Plastic — for the top seal of Expansion and Dummy Joints. The hot-poured, rubber-like, waterproof seal that conforms to Federal Spec. SS-F-336, C.A.A. Spec. P-605 and the Specifications of State Highway Departments.

Expansion Joints for any purpose—Asphalt, Fiber, Cork and Self-Expanding Cork.

Sewer Pipe Joint Materials —Hot-poured "Vitriflex", ready mixed cold troweled "Tufflex", or Pre-Moulded Belts.

Asphalt Plank—Mineral surfaced, Standard or Industrial.

Literature on request.

SERVICISED PRODUCTS CORP.

6051 W. 65th St. Chicago 38, Ill.

NATIONAL WAR FUND

★ ★ ★

★ ★ ★

FOR OUR OWN – FOR OUR ALLIES

GIVE

TO THE NATIONAL WAR FUND

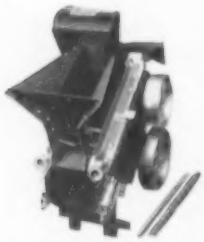
The varied worthy causes combined in the National War Fund include so many countries suffering under the Axis yoke that it provides a chance for global giving. The needs for entertaining our soldiers in their off-duty hours, seamen in rest homes, the relief needs of Britain and China and Holland, Greece, Poland, Russia, Yugoslavia, France, Norway, Belgium war prisoners, and other victims of the war are all brought together in one magnificent cause that appeals to the big heart of America. Your one contribution serves eighteen organizations.

NATIONAL WAR FUND
46 Cedar Street
New York 5, N. Y.

SLUDGE DISPOSAL— YESTERDAY *and* TODAY

Royer S "Jr."
(Electric motor driven).

Royer S "Jr." G
(Gasoline engine driven).



Model "SK"
(Belt to tractor driven).

Model "NSC-4"
(Electric motor driven).

When, a decade ago, the first Royer Sewage Sludge Disintegrators were put in service, the disposal of sludge had been strictly a matter of expense—the cost of burning, burial or hauling away. Sewage works superintendents have since learned that this expense can be transformed into a profit; that with the Royer their sludge can be converted into an effective, ready-to-use fertilizer with a minimum amount of labor. Although the fertilizing values in sewage sludge had long been known, it took the Royer to deliver them in usable form. Sludge cake as it comes from the drying beds is too coarse for practical use.

Through the years Royer users have found a ready market at a worthwhile profit for their fertilizer. Seasonal surpluses have been advantageously used in city parks, cemeteries and golf courses. It is small wonder that the number of Royers in service has grown to its present impressive total.

The wartime demand for greater food crops, plus the shortage of manpower and mechanical fertilizing materials, has enhanced the market for Royer-prepared fertilizer—among commercial growers and Victory gardeners alike. Many municipal sewage plants and park boards have worked out joint ownership and other cooperative arrangements.

Twelve Royer models are available. Send for a copy of comprehensive "Sewage Sludge Utilization Datalog."

Model "NSO"
(Gasoline engine driven).

THE ROYER FOUNDRY & MACHINE CO.
179 PRINGLE ST., KINGSTON, PA.

PIONEER BUILDERS OF COMPOST SHREDDERS

ALL OVER THE MAP!

For 25 years Kelly concrete cased wells have stood the test of time. We have several thousand now in service, covering a territory of 33 states and parts of Canada.

Kelly concrete cased wells are especially adapted for developing large water supplies from sand and gravel formations.

We Guarantee our wells to develop all available water, sand free, to their full capacity.

KELLY WELL CO., INC.
Grand Island, Neb.

Blueprint Now!

PITTSBURGH · DES MOINES

STEEL STORAGE TANKS

Far-sighted industrial managers today are utilizing the able technical skill and experience of Pittsburgh-Des Moines' engineers in "blue printing" projected improvements for prompt post-war construction. Use Pittsburgh-Des Moines planning assistance—without obligation!

PITTSBURGH · DES MOINES STEEL COMPANY

Pittsburgh, Pa. . . . 3412 Neville Island
Des Moines, Ia. . . . . 913 Tuttle Street

Southern Switch President Colonel on Governor's Staff

Edward A. Brass, President of Southern Switch & Signal Co. and the Shops of Edward A. Brass, Shreveport, La., has been appointed a Colonel on the staff of Hon. James H. Davis, Governor of Louisiana.

Edward A. Brass

Mr. Brass served as city signal engineer when Governor Davis was Commissioner of Public Safety in Shreveport. He has designed and manufactured signaling equipment for more than twenty years.

In 1942 the War Department requested that he be given a leave from these duties so that all his time could be devoted to managing the ordnance production of his two plants. Ninety-five percent of all their manufacturing activity since then has been supplying precision instruments to the armed services.

Pre-war products they manufactured were related to the signalling field, including fire, burglar, police alarm systems and traffic control systems. Though priorities are needed for the manufacture of these articles now, the companies are scheduling all orders of municipalities to assure quick delivery when restrictions are lifted.

New Container for Shipping Chemical

The Hood Chemical Co., 1819 Broadway, New York 23, N. Y., manufacturers of high test calcium hypochlorite HOODCHLOR which is being used by our armed forces as well as for civilian consumption at home, announce a new container for this product.

Hereafter the 25 lb. resealable pail of steel, lined with a special chlorine resistant lacquer, will be a standard package for HOODCHLOR. The pail is of extremely sturdy construction and has been adopted as a standard container for overseas shipment of certain chlorinated chemicals provided for our armed forces.

The small size of these new containers, permitting more convenient handling, together with their resealable feature, are expected to bring them into general use, supplanting the old type drum container.

Sales Manager for Manhattan Mechanical Dept.

Littleton C. Barkley, former Manager of the New York office of The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc., Passaic, N. J., has been appointed Sales Manager of the Manhattan Mechanical Rubber Goods Sales Department.

Harry E. Smith, General Manager of the division, in announcing Mr. Barkley's appointment stated that his office would be at 120 Broadway, New York, N. Y.

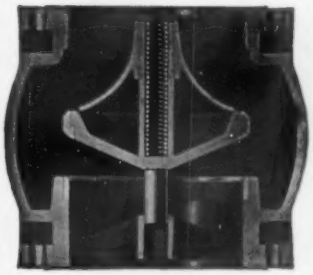
Dresser Reports to Stockholders

Consolidated net sales for the Dresser Mfg. Co., Bradford, Pa., and subsidiaries for the nine months ended July 31, 1944, amounted to $40,883,881 as compared to $49,926,513 for the corresponding period of 1943. H. N. Mallon, President, reported recently in a quarterly letter to stockholders. The backlog of orders as of that date totaled more than $29,000,000, the equivalent of five months' operation at the current rate.

"Although operations are considerably below the peak established during the summer of last year," Mr. Mallon said, "they have continued at a reasonably level rate since last October. With Allied advances in Europe and cutbacks in war contracts anticipated at home post-war prospects are of far more significance than current manufacturing operations."

At a special meeting to be held in October stockholders will be asked to change the name to Dresser Industries, Inc., and to approve an increase of authorized capitalization from 350,000 to 600,000 shares. Assets of International-Stacey Corp., of Columbus, Ohio, and its subsidiaries would then be acquired for 103,000 shares of Dresser stock.

SMOLENSKY VALVES



■ The Smolensky Radialflow Noiseless Check Valve eliminates water hammer, which assures operating efficiency and noiseless operation.

Designed to be constructed with a cast iron body, plug, spider, and made with a renewal bronze valve seat or seat of other metal when required.

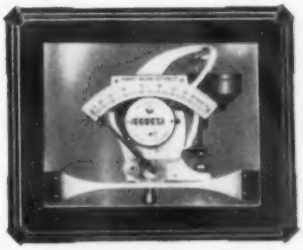
Specify Smolensky Valves for your water works plant and assure yourself years of trouble-free service.

Economy—Durability

THE SMOLENSKY VALVE CO.
940 BROADWAY, BEDFORD, OHIO

CONSISTENT ACCURACY
in
Main-Line Metering

You can read your Sparling meter as confidently as you tell the time by your old reliable watch! Forget the modest cost. Think of the dependable accuracy!



SPARLING MAIN-LINE METERS

All Sparling Meters are complete Totalizing units. Flow-rate indication and recording are added as desired. Controls, too. See Bulletin 308.

P. W. SPARLING
Manufacturer of Water Measuring Equipment

LOS ANGELES 54, Box 3277, Terminal Annex — 622 Broadway ..... CINCINNATI 2
CHICAGO 16....3104 South Michigan Ave. — 101 Park Avenue ..... NEW YORK 17
BOSTON 8 ..... 6 Beacon Street

"THEY DON'T MAKE 'EM ANY BETTER THAN SUPERIOR DIESEL"

Superior DIESELS • STATIONARY, 31 to 1200 H. P.

MARINE, 28 to 1200 H. P. • GENERATOR SETS, 12½ to 770 kw.

SUPERIOR ENGINES

Division of The National Supply Co.

Executive Offices: Pittsburgh, Pa.

Sales Offices: Springfield, Ohio; Boston; New York; Philadelphia; Washington, D. C.; Jacksonville; Houston; Fort Worth; Tulsa; Los Angeles; Chicago.

Factory: Springfield, Ohio.

Northrop & Co. Offers New Jointing Compound

Northrop & Co., Inc., 50 Church St., New York City, dealers in water works specialties and supplies, announces the purchase of a plant at Spring Valley, N. Y., and is now offering BOND-O, a sulphur base jointing compound for cast iron water mains, which it will manufacture in addition to its regular line of products. The following water works men with long experience in the water works field are associated with the company:

Guy C. Northrop, President of Northrop & Co., Inc., entered the waterworks business in 1919 selling water meters for eight years. In 1927 he entered the employ of Hydraulic Development Corp., New York, N. Y., to promote the sale of Hydro-Tite and for the last 16 years was its General Sales Manager. He is a past President of the Water Works Manufacturers Association and represented this group as Director of the American Water Works Association in 1936 and 1937. He recently resigned from Hydraulic Development to devote his entire time to Northrop & Co.

Ralph L. Kelly recently resigned from the Hydraulic Development Corp., and will represent Northrop & Co., Inc., selling BOND-O joint compound. Mr. Kelly has been long associated in the water-works field and will travel his old territory of Pennsylvania and Virginia. He will also devote part of his time to the New England States.

Bert Seeholzer, Jr., resigned his position with Hydraulic Development to devote his entire time to the activities of Northrop & Co., Inc. He has sold Hydro-Tite in New York State and New Jersey since 1928. He expects to start selling BOND-O in the near future.

Vic Sohle of Dallas, Texas, who represents R. D. Wood Co., Philadelphia, Pa., will also represent Northrop & Co., Inc., in the sale of BOND-O in the southwestern states. He is making arrangements to stock this product in Dallas for quicker distribution and better service. Ben F. Crabbe, of Birmingham, Ala., accepted a franchise for the sale of BOND-O for Northrop & Co., Inc., throughout the southeastern states. He is now arranging for a warehouse stock of BOND-O to better serve his customers. Mr. Crabbe has been in the water-works business for many years and until he entered business for himself about a year ago acted as Southern Sales Manager for McWane Pipe Co. E. Harold Johnson of Orlando, Fla., who handles a line of water-works materials throughout Florida, will represent Northrop & Co., Inc.

Clay Sewer Pipe Assn. Moves Offices

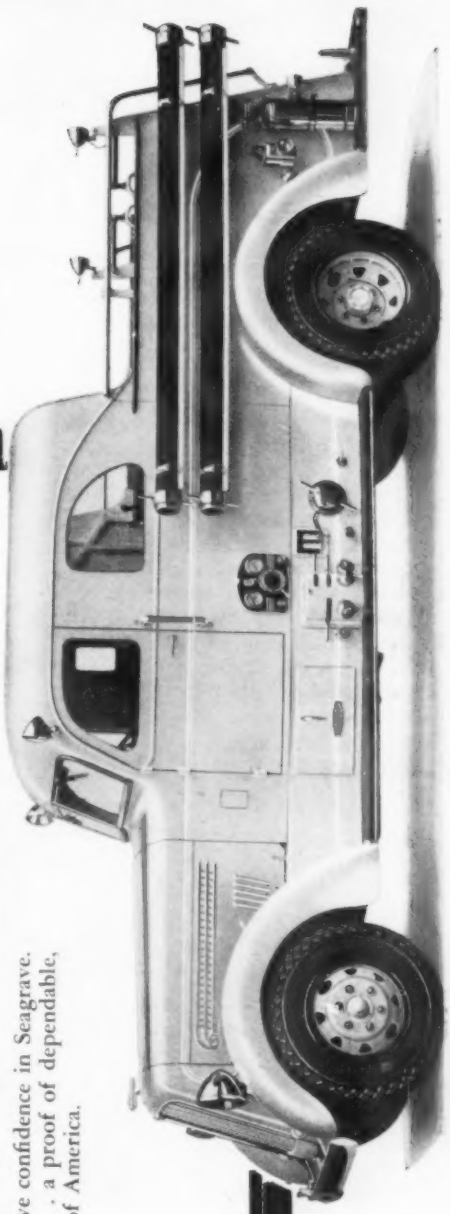
The offices of the Clay Sewer Pipe Association, Inc., were moved from Pittsburgh, Pa., to Columbus, Ohio.

The new address in Columbus is 50 West Broad St., and the same administrative and field personnel will serve with H. C. Maurer as President and Benjamin Eisner as Chief Engineer.

SEAGRAVE

A NAME THAT MEANS SAFETY AND DEPENDABILITY TO THE FIRE SERVICES OF THE NATION

★ Yesterday, today and always . . . SEAGRAVE—The Greatest Name In Fire Apparatus. ★



There is no substitute for years of experience and engineering skill in building fire apparatus . . . Seagrave has been doing this job and doing it better for sixty-three years.

The Fire Services of the nation naturally have confidence in Seagrave. It has proven itself throughout the years . . . a proof of dependable, trouble-free service to the cities and towns of America.

When you specify Seagrave you are getting more for your money in engineering developments, mechanical perfection and dependable performance.

THE SEAGRAVE CORPORATION
Columbus, Ohio

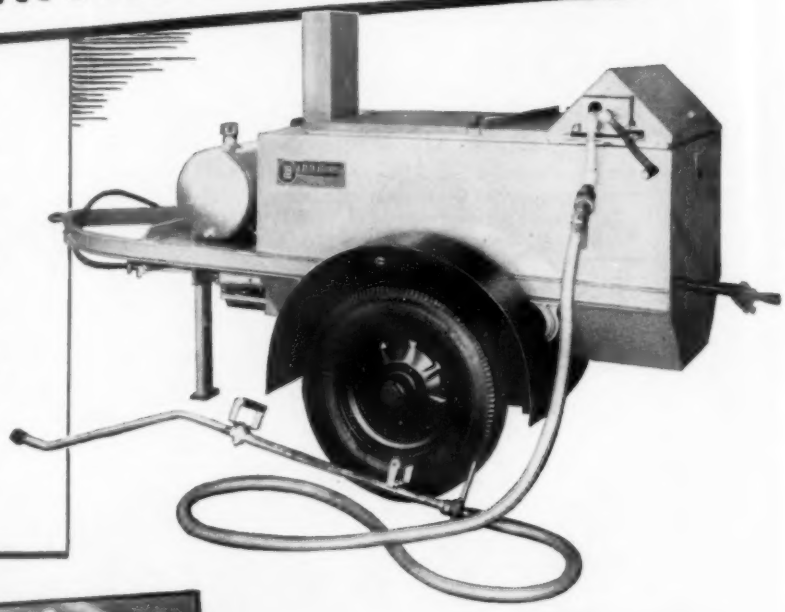
Bickle-Seagrave, Ltd., Woodstock, Ont.

MODEL No. 84-HD MAINTENANCE KETTLE

Here's the Kettle for post-war Road Maintenance with two Patented Features that assure greater heat distribution and a constant flow of melted material.

One of these features, "Double Heat Circulation System," utilizes the entire heat from the burner and distributes it evenly throughout the Kettle, giving faster heating. The other, "Screened Reservoir," keeps the cold materials when added, from cooling off the already melted material, also forces the new materials to the heated sides, making them melt faster.

For an efficient Black Top Road Unit, there is none to equal the Littleford 84-HD Kettle.



When shoulder work is required the 84-HD with hand spray attachment will do the job. Only two men are required to operate this 84-HD Kettle.

The 84-HD with Motor Spray Attachment is a one-man Kettle. All controls are in the operator's hands. For road repairs, this unit can cut the cost and speed up the work.

Road repairs such as holes, sub-grade failure, etc., need attention now and after the war. The 84-HD Kettle with hand spray or motor spray attachments can save costly repair work if used to keep road in fit condition.

BLACK TOP ROAD MAINTENANCE EQUIPMENT LB SINCE - 1900

LITTLEFORD

LITTLEFORD BROS., INC.
500 E. Pearl St., Cincinnati 2, Ohio

Joshua Hendy Promotes Executives

Charles E. Moore, President of the Joshua Hendy Iron Works, Sunnyvale, Calif., announced recently some promotions among top-ranking executives in the company.

Harry C. Gunetti

Capt. E. D. Almy, Assistant General Manager, will be Manager of the Crocker-Wheeler Division at Ampere, replacing A. J. M. Baker, Manager, who resigned to become Executive Vice-President and General Manager of the E. W. Bliss Co. with headquarters in New York.

Harry C. Gunetti, new Assistant General Manager, succeeds Capt. Almy in Sunnyvale. He has served for the past three years as General Superintendent for the Sunnyvale division of the company.

Other appointments include Robert Mann, former Assistant General Superintendent who becomes General Superintendent. Clifford Sayre, former Night General Superintendent, becomes Assistant General Superintendent, to succeed Mr. Mann.

Belt's

BETTER GRASSES

GERMINATION TRINITY BRAND PURITY QUALITY

TRIPLE LABORATORY TESTED FOR Better Lawns

THE BELT SEED COMPANY INC. OF BALTIMORE

90 *years*

OF PROGRESSIVE STORAGE TANK ENGINEERING!

Established in 1854, the R. D. Cole Mfg. Co. has long been recognized as one of the nation's outstanding tank builders. With 90 years of progressive storage tank experience at your disposal, we shall welcome the opportunity to serve your tank needs.

1,000,000-Gallon "Cole-Shallow Depth" Tank

ALL SHAPES AND SIZES

The R. D. Cole Mfg. Co. has developed a complete line of elevated steel tanks for water supply, both for domestic service, and sprinkler requirements, ranging in capacity from 5,000 to 2,000,000 gallons. The designs include the standard Hemispherical and Self-supporting bottom, the "Cole Ovaloid," Standpipe, and many individual styles involving architectural treatment to satisfy local conditions, or to provide special shapes for advertising purposes.

STORAGE TANKS

Pressure tanks for storage of gas from digestors at sewage disposal plants so that excess output at peak loads can be used during off-peak periods. Chemical storage tanks, hot water storage tanks, tanks for bulk storage of oils and gas.

CONSTRUCTION FACILITIES

Fabricated steel plate — the R. D. Cole Mfg. Co. has a fully equipped plant for the fabrication of riveted or welded steel plate. In addition to the construction of its regular line of horizontal return tubular boilers, oil storage tanks, tubular heaters, etc., the company is prepared to construct special tanks and apparatus of any specified metal plate.

Designs available for any service, made to your specifications or from our designs submitted by our own Engineering Department.

R. D. COLE MFG. CO.

Established 1854

NEWNAN, GEORGIA

GRUENDLER CRAFTSMANSHIP
Serving Industry over 50 Years

A remarkable Shredder for your Sewage Plant
Showing the way to Sanitary Engineers in many U. S. cities.

ROLL CRUSHERS
PULVERIZERS
CONVEYORS
CRUSHERS
FEEDERS
MIXERS

Write for DATA and Illustrated BULLETIN No. 0491 on Garbage and Sewage Disposal Equipment

GRUENDLER
CRUSHER and PULVERIZER CO.
2915-17 North Market St., ST. LOUIS (6), MO.

Non-Clog SHREDDER with Tramp metal catcher

Types & Sizes for Your Needs

Proved features . . .
enables complete disintegration of Rag Stock, Garbage, Fleshables and Fibrous materials without choke down, so as to pass screen bar—Designed with Spray Flushers, Tramp Iron Catchers and Non Clog Grate Bars.

GUNITE
NEW CONSTRUCTION—REPAIRS

PRESTRESSED TANKS	STEEL ENCASEMENTS
RESERVOIR LINING	DAM REPAIRS
PEN STOCK LINING	TUNNEL LINING
SMOKE STACK LINING	SEWER REPAIRS

DISINTEGRATED CONCRETE ABUTMENTS RENEWED

REPAIRS TO ALL TYPES OF MASONRY

Write for our Bulletins

PRESSURE CONCRETE CO.
Engineers & Gunite Contractors
1st Nat. Bank Bldg. FLORENCE, ALA.
6 Avenue B NEWARK 5, N. J.

7 things you should do to keep prices down

If prices soar, this war will last longer, and we could all go broke when it's over. Uncle Sam is fighting hard to keep prices *down*. But he can't do it alone. It's up to you to battle against any and every rising price! To help win the war and keep it from being a hollow victory afterward—you must *keep prices down*. And here's how you can do it:

1. Buy only what you need
2. Pay no more than ceiling prices
3. Support higher taxes
4. Pay off old debts
5. Don't ask more money
6. Save for the future
7. Buy War Bonds

KEEP PRICES DOWN

Use it up . . . Wear it out . . .
Make it do . . . Or do without.

Contributed by this magazine in cooperation with the Magazine Publishers of America.

City Planning and Housing Meet

Recognition of the cordial cooperation that ought to exist between "housers" and community planners is dramatized in this cartoon, published in HOUSING NEWS *of the Citizens' Housing Council of New York.*

The Detroit City Plan Commission advocates modern ideas in neighborhood planning.

NOV 18 1944

NOVEMBER, 1944

PERIODICAL ROOM
GENERAL LIBRARY
UNIV. OF MICH.

The American City

PROPOSEI
CIVIC DEVELOPMENT
ALONG THE WATERFRONT AT PORTLAND, OREGON

1. New City Hall
2. Hall of Justice
3. New City Jail
4. State Office Building
5. Horticultural Center
6. Museum
7. Music Hall
8. Coliseum
9. Federal Office Building
10. Market Building
11. Appropriate Semi-Public Use

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